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Thematic cluster for the implementation cycle 2010-2011 -- policy session

Policy options and actions for expediting progress in implementation: interlinkages and cross-cutting issues

Report of the Secretary-General

Summary

Strong interlinkages and interlocking relationships exist among the five issues in the thematic cluster. Policies and measures aimed at addressing one issue may have co-benefits for other issues and should therefore be considered in the context of an integrated approach in order for long-term progress to be achieved. Risk assessment and risk reduction are relevant to both chemicals and hazardous-waste management, while transport connects the nerve centres of economic activity and human population, with a high relevance for the transportation of chemicals, minerals and waste. Significant adjustments to policies and management practices will be needed in all four sectors — transport, chemicals, waste management and mining — to shift to sustainable consumption and production patterns. Such interlinkages are highlighted in the present report with a view to developing a menu of policy options and measures that have optimal effectiveness. Where appropriate, the interlinked aspects of the issues are also reflected in the separate thematic reports. International cooperative efforts can help to ensure that urgent and effective action is taken to build on the interlinkages among the issues in order to further the implementation of the sustainable development agenda.

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I. Introduction

1. At its eighteenth session, which was the review session of the fourth implementation cycle 2010-2011, the Commission on Sustainable Development undertook an evaluation of the progress made in the implementation of Agenda 21,[1] the Programme for the Further Implementation of Agenda 21,[2] and the Plan of Implementation of the World Summit on Sustainable Development (Johannesburg Plan of Implementation),[3] while focusing on the identification of constraints and obstacles in the process of implementation with regard to the current thematic cluster. The issues covered in this cluster relate to transport, chemicals, waste management, mining and the 10-year framework of programmes on sustainable consumption and production patterns. The report of the review session[4] includes a chair's summary that reflects the constraints and obstacles and possible approaches and best practices for the implementation of those intergovernmental agreements, as well as the way forward identified by the ministers who attended the high-level segment.

2. The present report is a contribution to the Commission's consideration of policy options and possible actions to address the constraints and obstacles to implementation identified in the report of the review session. At its nineteenth session, the Commission on Sustainable Development will take policy decisions on practical measures and options for expediting implementation with respect to the selected thematic cluster of issues, taking account of the discussions of the intergovernmental preparatory meeting, reports of the Secretary-General and other relevant inputs.

3. The present report draws on a number of sources, including national reports, the outcomes of regional implementation meetings and contributions from major groups, regional commissions and United Nations specialized agencies, funds and programmes. As close linkages exist among the five issues in this thematic cluster, the relevance of those interlinkages for policy options is considered here. The cross-cutting issues identified at the eleventh session of the Commission are also considered in the present report. The report should be read in conjunction with each of the thematic reports.

II. Interlinkages among thematic issues

4. A holistic approach to the thematic cluster can yield better results by addressing the interlinkages among the issues, especially in the process of considering policy options, undertaking actions and implementing on-the-ground projects. It is also important to note that significant interlinkages exist among the

[1] *Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992*, vol. I, *Resolutions Adopted by the Conference* (United Nations publication, Sales No. E.93.I.8 and corrigendum), resolution 1, annex II.

[2] General Assembly resolution S-19/2, annex.

[3] *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002* (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap. I, resolution 1, annex.

[4] E/2010/29.

themes of the current cycle and those of previous cycles, inter alia, human settlements, water, agriculture and climate change.

5. A life-cycle perspective helps to elucidate the linkages among the themes of the current cycle, with sustainable consumption and production as a unifying theme encompassing key aspects of each of the other themes. A life-cycle perspective reinforces the responsibility of actors along the whole chain of a product's life cycle to consider their contribution to its sustainable production and consumption, including consideration of any "external" effects on the environment.

6. Natural resources are extracted through mining in various parts of the world. They are transported to serve as input for the production of materials and chemicals that then go into many varieties of industrial products, which are consumed and used and which, at the end of their useful life, become waste. If hazardous chemicals are a part of products, the resulting waste can also be hazardous, as in the case of electronic products such as computers, mobile phones and televisions. If waste is not adequately managed, it can harm humans and ecosystems, and chemicals can be released into the environment. Transport is an increasing part of the life cycle of products owing to the ever-increasing distances that many materials, chemicals, products and wastes travel.

7. Addressing those themes together facilitates the development of policy recommendations for resource efficiency, with a view to decoupling economic growth from resource use and environmental impacts throughout the product life cycle.

8. Interlinkages with the issues in other thematic clusters are also important. For example, pesticide management is used to introduce sustainable and environmentally sound agricultural practices that reduce the health and environmental risks associated with the use of pesticides. To that end, the Food and Agriculture Organization of the United Nations (FAO) has introduced the International Code of Conduct on the Distribution and Use of Pesticides. Additionally, with the help of the World Health Organization (WHO), the FAO Panel of Experts on Pesticide Residues in Food and the Environment considers the available recognized residue data collected through supervised trials. On the basis of those data, maximum residue levels are proposed for individual pesticides in individual food and feed items or well-defined groups of commodities.

9. Energy is another important link throughout this thematic cluster, as it is an important component in the management of chemicals and waste and is used in mining and transport. Waste can also provide a source of energy. The sustainable use of energy and the use of renewable energy can reduce greenhouse-gas emissions linked to climate change and that are associated with activities in all four sectors, especially transport.

10. Even though volatile and historically high oil prices have raised concerns about energy security and reduced dependence on fossil fuels, an energy revolution based on the widespread deployment of low-carbon technologies could be a response to the climate change challenge. According to *Energy Technology Perspectives 2010*, there are early signs that such an energy technology revolution is under way. Investment in renewable energy, led by wind and solar, is increasing substantially. In the area of transport, major car companies are adding hybrid and full-electric vehicles to their product lines, and many Governments have launched

plans to encourage consumers to buy such vehicles. Yet those encouraging developments represent only the first small, fragmented steps of a long journey towards transforming the way in which we supply and use energy. The trends that drive growth in energy demand and carbon dioxide emissions continue to surge forward at an unrelenting pace.[5]

11. Water is another issue that has important interlinkages with regard to the current thematic cycle. For example, it is important to protect watercourses and terrestrial ecosystems from pesticides and industrial chemicals. With respect to waste management, in developing countries landfills are often located near water sources for households; treatment of wastewater is also an important element in the safeguarding of human health and the environment.

12. In terms of transport, ships often generate a number of waste streams that include sewage, grey water, oily bilge water and ballast water. If not properly treated and disposed of, such wastes can become a significant source of pathogens, nutrients and toxic substances that are potentially threatening to human health and aquatic life, particularly in environmentally pristine coastal areas.

13. Together with energy, water is necessary for the extraction and processing of minerals and metals. The use of more sustainable methods of production can reduce water consumption. For example, steel production from scrap in electric-arc furnaces reduces such consumption by 40 per cent compared with steel production from iron ore in a blast furnace.[6] Surface mines can contaminate water sources, while underground mines are associated with problems related to acid mine-water drainage. Additionally, the disposal of tailings from mining has been a pervasive cause of environmental damage and is polluting water sources. According to the World Resources Institute, almost one third of all active mines are located in stressed watersheds, and more than one third are in areas that may be predisposed to water-quality problems.[7]

14. Owing to their small size and their geological, topographical and climatic conditions, small island developing States are among a group of countries that face major constraints in terms of the quality and quantity of freshwater resources. This is particularly true in the case of low-lying coral islands, where groundwater supplies are limited and protected only by a thin, permeable soil. Thus the contamination of water supplies through improper waste disposal or management of agricultural chemicals poses a particular problem for those States. Likewise, the dependence of their economies on marine resources and coastal tourism means that marine waste — whether from local land-based activities, transported across the seas or originating from ships — also poses a threat to local economies.

15. The Pacific Hydrological Cycle Observing System was established in 2007 to build the capacity and infrastructure of Pacific small island developing States. A resource book and a handbook on integrated water resources management in small island developing States, which contains input from and the experiences of small island developing States in the Caribbean, the Pacific and the Atlantic, Indian Ocean, Mediterranean and South China Seas region, will be published by the United Nations Environment Programme (UNEP) in 2011.

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[5] *Energy Technology Perspectives 2010*, International Energy Agency, 2010.

[6] See E/CN.17/2010/7.

[7] Ibid.

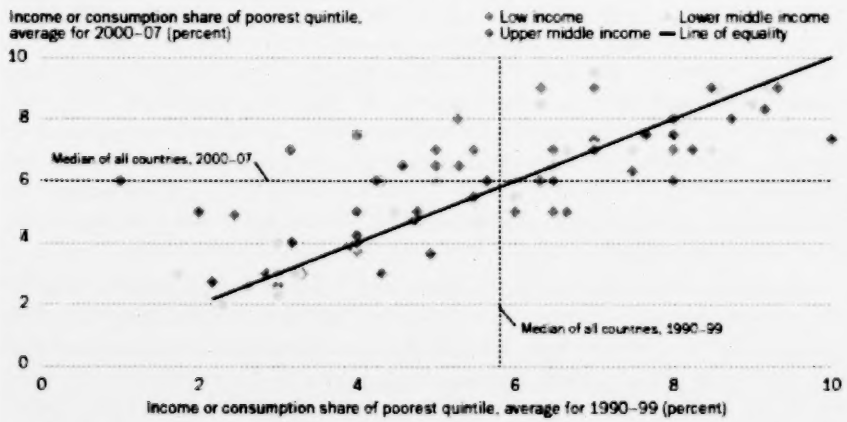
III. Cross-cutting issues

16. A key challenge for the future is how to maintain an upward convergence of living standards together with a downward convergence (or shrinkage) of ecological footprints.

17. The current unsustainable use of natural resources at the global level is endangering not only the state of the environment, essential ecosystem services and biodiversity, but also human health and the well-being of present and future generations. It is therefore necessary to change consumption and production patterns in order to address the challenges related to poverty eradication, long-term food security, climate change and biodiversity loss. The sustainable consumption and production agenda is very broad, but resource and energy efficiency improvements are at its heart. It also includes measures to improve the safe management of chemicals and hazardous waste as well as to minimize waste and maximize recycling, and to support sustainable mining practices and sustainable transport systems.

18. The poorest 20 per cent of the population accounts for just 6 per cent of total income or consumption. Since 1990, that share has shown the greatest increase in low-income countries, but it has tended to shrink in upper-middle-income countries (see fig. I). Consumers in developed countries and wealthy consumers everywhere must take the lead in moving towards sustainable patterns of consumption. Production systems also need to move towards sustainable patterns of resource use, which would reduce pollution and waste. Developed-country enterprises can chart the way forward, supporting their suppliers and partners around the world with technology and know-how.

Figure I
Income or consumption share of poorest quintile



Source: *World Development Indicators 2010*, World Bank.

19. Enhancing human and social capital through education and inclusive social participation as well as cost-effective, reliable, and affordable infrastructure services, including sustainable transport, and strengthening the sound management

of chemicals as well as of hazardous and solid waste by emphasizing prevention and managing natural resources in an integrated and holistic manner will result in development that will increase the overall prosperity of society. This will also require the strengthening of an enabling environment for implementation, inter alia, through participatory decision-making by all stakeholders, including women; access to finance and global and regional markets; improved educational opportunities; and adequate access to information not only by experts but also by the general public, in order to minimize health risks and injuries related to chemicals, waste, mining and transport.

20. All five current themes relate to the Millennium Development Goals. Thus, the sound management of chemicals can reduce child mortality (Goal 4) and improve maternal health (Goal 5). Annually, more than 3 million children under age 5 die from preventable environment-related causes. Elimination of the use of mercury in health-care and consumer products, a move away from solid indoor fuels, the use of insecticide-treated bednets, improved water and sanitation systems, measures aimed at slowing traffic and a host of other interventions can successfully lower the rate of environment-related death and reduce suffering among children in many countries. The Third International WHO Conference on Children's Health and the Environment called for a global plan for action, to be developed by WHO and UNEP.

21. The sound management of chemicals can lead to improved human and environmental health, increased economic security and income opportunities. UNEP has joined forces with the United Nations Development Programme (UNDP) in a partnership aimed at integrating the sound management of chemicals into development plans such as poverty reduction strategy papers and strategies to meet the Millennium Development Goals. This involves establishing links between poverty and sound chemicals management and identifying the policies and programmes needed to bring about pro-poor chemicals management. It also entails looking at the potential chemicals-related risks arising from the implementing sections of the development plans and trying to mitigate such risks at the planning stage.

22. Waste management, especially as it relates to sanitation and safe drinking water, contributes to environmental sustainability (Goal 7).

23. The small island developing States face particular problems in the area of waste given their low environmental and socio-economic carrying capacities. Current waste management practices have resulted in the degradation of coral reefs, seagrass beds, mangroves and coastal zones, as well as of freshwater resources, resulting in health warnings about disease and risks from contaminated water and food supplies. Such developments threaten tourism, fisheries and even food security.

24. Many poor people depend on waste streams to earn their livelihoods. Innovative, often small-scale waste management schemes that convert waste into resources contribute directly and indirectly to poverty alleviation and gender equality.

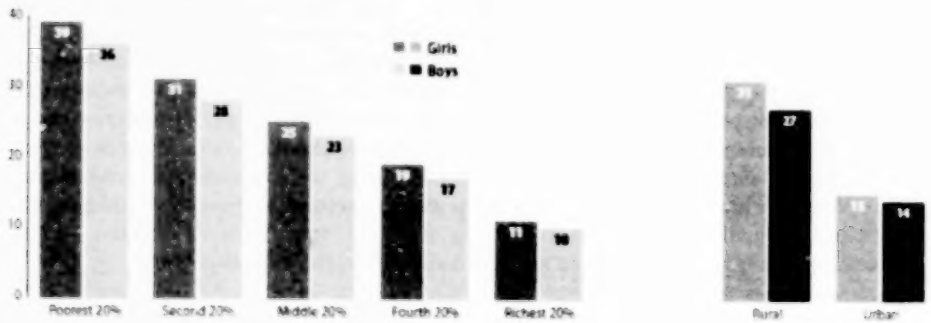
25. According to recent national estimates by the secretariat of the United Nations Framework Convention for Climate Change, the waste sector, including waste water, produces, on average, 2.4 per cent of national greenhouse-gas emissions. The anaerobic degradation of organic materials in landfills and unwarranted dumpsites is a key source of such emissions, creating methane. However, the waste sector is in a unique position to transform itself from a minor source of greenhouse-gas emissions

to becoming a major saver of emissions. It has been possible recently to recover energy and other useful products from waste owing to the considerable technological breakthroughs that have been made, which have led to the implementation of waste-to-energy projects. The prevention and recovery of wastes (i.e., as secondary materials or energy) reduces emissions in other sectors of the economy. Energy-recovery projects have been the recent focus of Government investments in developed countries. The waste-to-energy market was estimated at $19.9 billion in 2008 and, according to forecasts, the market will grow 30 per cent by 2014.[8]

26. Transport is an important element in terms of achieving universal primary education (Goal 2). Household data from 42 countries show that rural children are twice as likely to be out of school as children living in urban areas, partly because of poor transport[9] (see fig. II). In countries with lower rates of access to roads, the percentage of girls enrolled in schools is lower. Schools may be far and hard to reach, and many households prefer to fund the transport cost for boys to attend schools.[10]

Figure II

Out-of-school children by wealth quintile and area of residence, girls and boys, 42 countries, 2000/2008 (percentage)



Source: Millennium Development Goal Report 2010.

27. A statistical analysis of the relationship between poverty incidence and road development shows that a decline in poverty rates can — to a significant degree — be attributed to improved road access (see fig. III). In addition to the positive effect of universal road access on poverty, dynamic effects on social and economic development may include: (a) the possible abandonment of subsistence production by many rural people in favour of migration to urban centres; (b) changes in rural land values as roads bring previously isolated areas into the market economy; (c) the newfound profitability of certain investments; and (d) an improved flow of market-related information, with benefits in terms of economic efficiency.[11]

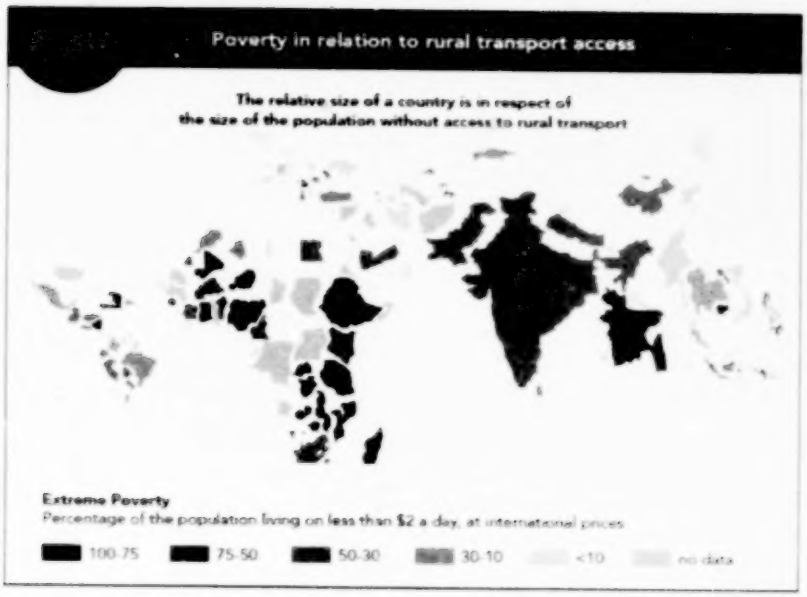
[8] Available from www.bccresearch.com.

[9] Ibid.

[10] Department of Economic and Social Affairs, *Trends in Sustainable Development. Chemicals, mining, transport and waste management* (United Nations publication, Sales No. 10.II.A.3).

[11] Ibid.

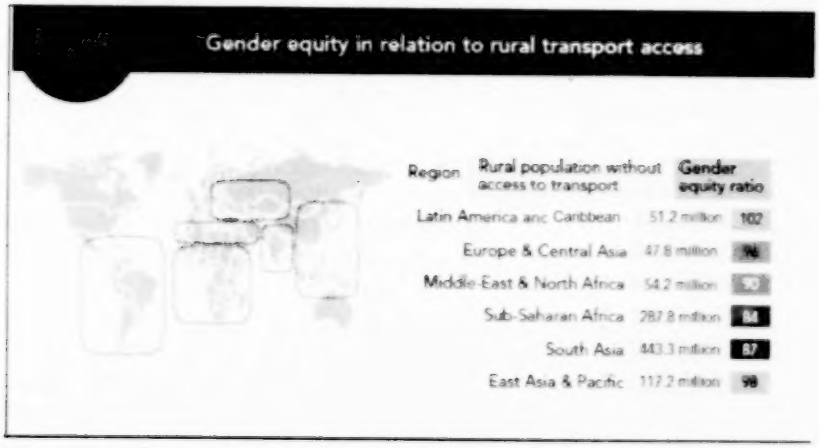
Figure III


Poverty in relation to rural transport access
The relative size of a country is in respect of the size of the population without access to rural transport
Extreme Poverty
Percentage of the population living on less than $2 a day, at international prices
100-75
75-50
50-30
30-10
<10
no data

Source: Department of Economic and Social Affairs, *Trends in Sustainable Development. Chemicals, mining, transport and waste management*, 2010.

28. Studies have also shown a correlation between gender equity and transport (see fig. IV). In areas where access to roads and transport is better, gender equity is greater. This also affects the safety of women and maternal health.

Figure IV



Source: Department of Economic and Social Affairs, *Trends in Sustainable Development. Chemicals, mining, transport and waste management*, 2010.

29. The volume of transport matters most to economic activity, but the transport mix is just as important for the environment. Developing countries now account for the majority of greenhouse-gas emissions from electricity and heat as well as industry, while developed countries still account for a majority of emissions in the transport and building-use sectors.[12] Switching to more sustainable modes of transport in developed countries thus has a larger immediate potential to contribute to climate-change mitigation in particular and pollution reduction in general. In future, most private transport growth will occur in developing countries, so they, too, will need to stimulate rapid growth of public and other low-emissions transport.

30. Sustainable consumption and production also contributes to poverty eradication and development in a number of ways. For example, greater efficiency in resource use and a reduced environmental impact from the production of goods and services over their life cycle result in improved productivity and lower costs. This allows for more to be done with less, and the provision of cleaner and more resource-efficient goods and services (such as water, energy and food) allows more people to meet their basic needs. More resource-efficient production practices allow consumers in developing countries to meet more of their needs (and therefore consume more) by using the same amount of, or even fewer, resources; in this way, more efficient and sustainable production effectively expands the resource base available to the poor.[13]

31. Sustainable consumption and production also offers the possibility of "leapfrogging" to more resource-efficient, environmentally sound and competitive technologies, bypassing inefficient, polluting and ultimately costly phases of development. That could improve the competitiveness and access of local products to national, regional and international markets, thereby increasing the possibilities for generating new revenue streams and economic growth, which in turn, if distribution policies and activities are in place, can contribute to poverty eradication.

32. Through a better understanding of social impacts along the life cycle, potential improvements can be identified for global product chains. The UNEP publication *Guidelines for Social Life Cycle Assessment of Products* provides a framework for assessing and reporting on the social and socio-economic impacts and benefits of products along their life cycles, from the extraction of natural resources to final disposal.[14]

33. The issues of health and sustainable development are inextricably linked. In this context, health implies concern for quality of life in both the short and long term for poor and rich alike. It is also dependent on the choices consumers make regarding their lifestyle, including in the areas of nutrition, smoking, and the use of psychoactive drugs or alcohol.

34. Health is a cross-cutting issue in all of the themes of this cycle. More than 25 per cent of the global burden of disease is linked to environmental factors, including exposure to chemicals. Some 800,000 children each year are affected by lead exposure. Unintentional poisonings kill an estimated 355,000 people each year.

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[12] Ibid.

[13] See http://www.unep.fr/scp/poverty/faq.htm.

[14] Available at http://www.unep.fr/scp/publications/details.asp?id=DTI/1164/PA.

In developing countries, such poisonings are associated strongly with excessive exposure to and the inappropriate use of toxic chemicals, including pesticides.[15]

35. Experiences and efforts in promoting the sustainable management of chemicals indicate that overcoming the challenges involved in integrating the sound management of chemicals into development plans depends largely on a greater understanding of the linkages between health and the environment. On that basis, UNEP and WHO joined efforts to organize a process aimed at catalysing policy and the institutional and investment changes required to reduce environmental threats to health in support of sustainable development. Tools and methodologies have been developed to undertake country situation analyses and needs assessments for the identification of national priorities, with a view to the development of national joint action plans.

36. Improper waste disposal practices (e.g., open dumps, which are the most common disposal method in developing countries) have led to many undesirable health effects, including skin and eye infections, respiratory problems and vector-borne diseases such as diarrhoea, dysentery, typhoid, hepatitis, cholera, malaria and yellow fever.

37. Gender is another important cross-cutting issue interlinking the five themes. For example, women tend to leave a smaller ecological footprint than men owing to their more sustainable consumption patterns. The lifestyles and consumer patterns of men, be they rich or poor, tend to be more resource-intensive and less sustainable than those of women.[16] A more "feminine" footprint would have a smaller impact on the environment. Women are more likely to recycle, buy organic food and eco-labelled products and place a higher value on energy-efficient transport. They make more ethical consumer choices, paying closer attention to issues such as child labour and sustainable livelihoods, and are more apt to buy socially labelled goods.[17]

38. Women also bear a disproportionate burden in terms of maintaining sustainable lifestyles. Thus, while they may want to increase the sustainability of their consumer choices, they need assistance in reducing their impacts on the environment. For instance, a study of gender and sustainable consumption in Sweden has found that in most families, household and family duties remain the responsibility of women. Women are therefore often pressed for time, which makes the pursuit of sustainable consumerism and lifestyles difficult. The study notes that while gender equity policies have supported the development of greener lifestyles, policy also needs to focus on ways of inducing producers to deliver high-quality, sustainable products at attractive prices.[18]

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[15] WHO, *Preventing disease through healthy environments: Towards an estimate of the environmental burden of disease*, 2006; available at www.who.int/quantifying_ehimpacts/publications/preventingdisease/.

[16] Johnsson-Latham, G. (2006), *Initial study of lifestyles, consumption patterns, sustainable development and gender*, Stockholm, Ministry of Sustainable Development.

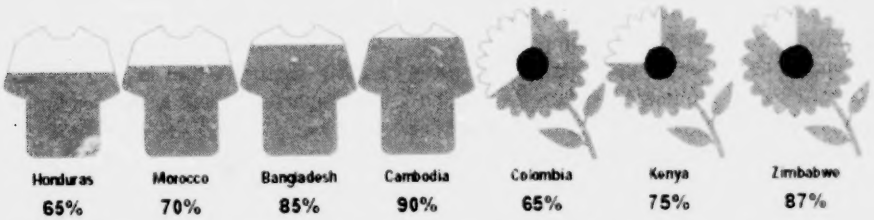
[17] OECD, "Gender and sustainable development: Maximizing the economic, social and environmental role of women", 2008.

[18] Isenhour, C. and M. Ardenfors (2009), "Gender and sustainable consumption: policy implications", *International Journal of Innovation and Sustainable Development*, vol. 4, No. 2-3, pp. 135-149.

39. On the production and corporate side, gender perspectives may also be relevant to sustainability. At the highest levels of private enterprise in the world's largest corporations, there are still very few women Chief Executive Officers, so it is difficult to know with any certitude how an increase in their number would change the way in which such companies are run. It has been hypothesized, however, that they would be more likely to mainstream corporate social responsibility into business decision-making.[19]

40. At the shop-floor level, women are increasingly visible in export-oriented sectors in middle-income developing countries, where they comprise up to 90 per cent of workers (see fig. V). Women now form the larger part of the workforce in low-skill, labour-intensive jobs in textile, clothing, pharmaceuticals, household goods and toy production in developing countries.[17] Good corporate practice therefore needs to be gender-sensitive, especially in such labour-intensive industries, addressing the particular concerns of women in the workplace along with the broader issue of decent work, which concerns both genders.

Figure V
Women as share of total workers in the export production of clothing and flowers



Source: OECD, "Gender and sustainable development: Maximizing the economic, social and environmental role of women", 2008.

41. Governments can promote more sustainable corporate behaviour by providing support for sustainability reporting systems and international instruments. Some countries, including France and Sweden, are moving to make reporting mandatory.[20] More companies are now publishing corporate sustainability reports to inform consumers and other stakeholders of their environmental and social values and practices at home and abroad. While the corporate social responsibility approach to promoting sustainable production — focused on large multinational corporations — is gaining ground, it is only gradually trickling down to small- and medium-scale enterprises along global supply chains. Many goods are still produced using underpaid child or female labour or environmentally damaging processes, or with neglect for basic health and safety rules. On the positive side, multinational companies are increasingly being held accountable for the production impacts of their suppliers, including in terms of the environment, safety and health, and workers' rights. More international codes of conduct are addressing the issue of

[19] See http://business-ethics.com/2010/10/07/1624-when-women-rule-the-c-suite/.

[20] *Carrots and sticks — Promoting transparency and sustainability: An update on trends in voluntary and mandatory approaches to sustainability reporting* (2010) (English only), available at http://www.unep.fr/scp/business/publications/.

reporting and monitoring with respect to how a company's product range supports sustainable production along the global supply chain.

42. Education is another important cross-cutting issue, especially in the area of consumption and production patterns. Rethinking and revising formal and informal education, from preschool to university, to include more principles, knowledge, skills, perspectives and values related to sustainable consumption is important now and in future. Changes in values and in world views generally occur only gradually, so what is done in terms of education today may show tangible benefits only later on.

43. One recent article highlights the challenges facing educators and education in the coming decades, noting:

> We need an educational culture and practice adequate and appropriate to the volatile, densely interconnected and dangerously vulnerable world that we have created. Instead of educational thinking and practice that tacitly assumes that the future is some kind of linear extension of the past, we need ... an anticipative education, recognising the new conditions and discontinuities which face present generations, let alone future ones: the massive challenges of global warming, species extinction, economic vulnerability, social fragmentation and migration, endemic poverty, the end of cheap energy, and, more positively, the rise of localism, participative democracy, green purchasing, ethical business and efforts to achieve a low-carbon economy. The heart of such an education is an ecological orientation. Other descriptors which help capture this sense are "holistic", "systemic" and 'participative'; they indicate a redesigned educational paradigm that is in essence relational, engaged, ethically oriented, and locally and globally relevant.[21]

44. At a practical level, some international initiatives have been developed to assist the integration of sustainable consumption into education and raise awareness about sustainable lifestyles. These include the UNEP/United Nations Educational, Scientific and Cultural Organization (UNESCO) YouthXchange programme on sustainable lifestyles aimed at educators and young people, the initiatives and tools developed by the international Task Forces on Education for Sustainable Consumption and on Sustainable Lifestyles under the Marrakech Process on sustainable consumption and production,[22] and the multi-stakeholder partnerships and initiatives led by civil society organizations such as the Partnership for Education and Research about Responsible Living, the Consumer Citizenship Network and the Center for Environmental Education. Tools have also been designed to support education and awareness-raising on sustainable lifestyles and consumption, including the publication entitled *Here and now! Education for sustainable consumption: Recommendations and guidelines*, developed by UNEP and the Task Force on Education for Sustainable Consumption in cooperation with the secretariat of the United Nations Decade of Education for Sustainable Development and Hedmark University College, in Norway, in the framework of the Marrakech Process on sustainable consumption and production; the UNESCO "Guidelines and recommendations for reorienting teacher education to address

[21] Sterling, S., "Sustainable education — Towards a deep learning response to unsustainability", *Education for Sustainable Development*, vol. 6, 2008.

[22] The first is led by Italy, the second by Sweden; see www.unep.fr/scp/marrakech/taskforces/education.htm and www.unep.fr/scp/marrakech/taskforces/lifestyles.htm.

sustainability", at the global level; and Portugal's "Guide to consumer education", at the national level.[23]

45. In all respects, sustainable consumption and production, with its holistic approach, is key to achieving sustainability in the areas of mining, transport, chemicals and waste. The 10-year framework of programmes on sustainable consumption and production patterns, called for at the World Summit on Sustainable Development, held in 2002, provides an opportunity to address the themes of the current thematic cycle together, in a holistic and comprehensive manner. It is aimed at developing a policy framework for resource efficiency, with a view to decoupling economic growth from resource use and environmental impacts throughout the product life cycle. The framework allows for coordination and cooperation between new and existing initiatives on sustainable consumption and production and provides a platform for sharing, replicating and scaling up good practices, as well as supporting the development of policies, partnerships and capacity-building aimed at accelerating the shift towards sustainable consumption and production. The programmes under the 10-year plan that could emerge from the nineteenth session of the Commission on Sustainable Development could focus on key sustainable consumption and production policies and cross-cutting programmes as well as programmes specific to given stages of the life cycle. Programmes on the current themes of waste management, transport, chemicals and mining, could be considered for inclusion.

IV. Means of implementation

46. Over the past two years, the world has witnessed the emergence of multiple global crises related to food, fuel and finance. Instability in the energy and commodities markets, global food shortages and water scarcity have most recently been overshadowed by a financial and economic crisis whose recessionary impacts continue to be felt in many parts of the world. Adding to the situation's complexity is climate change, a phenomenon that is exacerbating the impact of those crises. The effects are felt worldwide and have specific implications for the achievement of sustainable development and the Millennium Development Goals. While it is clear that the international community and national Governments face multiple and serious challenges, the situation also presents genuine opportunities to make a dramatic shift from "business as usual".[24]

47. The world economy is recovering from a severe downturn, but the recovery is still very fragile and uneven. The global jobs crisis has not subsided, as can be seen from the persistently high unemployment rates in the major developed countries and the increased rates of underemployment and vulnerable employment in many developing countries.

48. The perceived need among many donor countries to start fiscal consolidation sooner rather than later could put resource availability under further pressure at a juncture where sustained support for progress on the Millennium Development Goals is crucial. The prospect of concluding a development-oriented Doha round in the near future still seems highly uncertain. Improved access to new technologies

[23] See E/CN.17/2010/8 and Corr.1.
[24] See UNEP/GCSS.XI/10/Add.1.

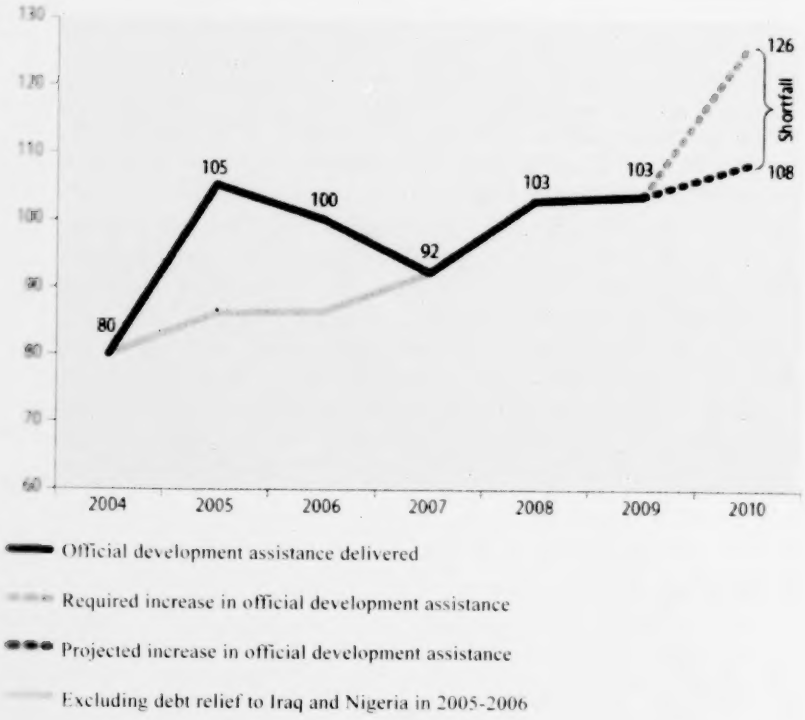
has become increasingly pressing, especially those technologies necessary for climate-change mitigation and adaptation.

49. Preliminary estimates for 2009 by the secretariat of the Development Assistance Committee of the Organization for Economic Cooperation and Development (OECD) and its review of aid budgets for 2010 indicate that Development Assistance Committee members as a whole were not on track to meet the 2010 aid volume targets (see fig. VI). Indeed, OECD has projected that total official development assistance in 2010 will fall $18 billion short (in 2004 prices and exchange rates) of the updated target set at the G-8 summit held in Gleneagles, Scotland. Translated into more recent 2009 prices, the shortfall amounts to $20 billion. No intermediate targets have been adopted for the years after 2010, leaving the United Nations target as the remaining applicable benchmark, against which the delivery gap in 2009 is $153 billion.[25]

Figure VI

Official development assistance since 2004, in relation to 2010 commitments

(Billions of 2004 United States dollars)



Source: *Millennium Development Goal 8: The Global Partnership for Development at a Critical Juncture. Millennium Development Goal Gap Task Force Report 2010.*

[25] See *Millennium Development Goal 8: The Global Partnership for Development at a Critical Juncture. MDG Gap Task Force Report 2010* (United Nations publication, Sales No. E.10.I.12).

50. The global financial and economic crisis increased the need for many developing countries to secure substantial additional, quick-disbursing financial support. The international community responded with substantially increased funding and reform of multilateral financial facilities. In the case of the International Monetary Fund, in January 2010, countries that qualified to draw concessional resources were given expanded access to a simplified set of facilities. Multilateral development banks also sharply boosted their lending in the face of the crisis. In particular, the International Development Association of the World Bank committed $14 billion in loans in 2009, a 20 per cent increase over 2008.[26]

51. Delivery on aid targets for least developed countries has been disappointing. The most recent data show that the overall Development Assistance Committee official development assistance effort was 0.09 per cent of donor gross national income in 2008, well below the target of 0.15 per cent.[25] As a result of persistent calls to scale up aid to Africa, such aid has been growing significantly, but not enough to meet the Gleneagles target. To meet that target, Africa's official development assistance in 2009 would have had to exceed $61 billion.

52. Two other groups of countries, small island developing States and landlocked least developed countries, require special developmental attention. According to OECD data, small island developing States received almost $4 billion in official development assistance in 2008, an amount that has grown relatively slowly over the past decade (3.2 per cent annually, on average, in 2008 prices and exchange rates). Landlocked least developed countries received almost $23 billion in official development assistance in 2008, reflecting an increase of 9 per cent annually since 2000 owing to the fact that Ethiopia and Afghanistan are in this group as the second- and third-largest aid recipients in the world.[25]

53. The most recent comprehensive survey of the implementation of the Paris principles — national ownership, alignment, harmonization, managing for results, and mutual accountability — has shown that, of the 12 numerical targets contained in the Paris Declaration on Aid Effectiveness, the target of aligning and coordinating 50 per cent of technical assistance projects with country programmes had been achieved in 2007. Donors had also made good progress towards the goal of untying all aid. Further, from 2005 to 2008, developing countries made good progress in improving their public financial management systems (36 per cent of countries had improved their score for public financial management, against a target of at least 50 per cent). Yet much less progress had been made towards the remaining targets, in particular regarding the use of local country systems, the predictability of aid flows and the reduction of the transaction costs of providing aid.[27]

54. Another focus of attention has been the transparency of official development assistance. The lack of relevant and timely information on aid flows impedes the ability of Governments to plan, budget and evaluate the impact of aid in their countries. Together with governmental financial transparency, official development assistance transparency strengthens domestic accountability and the participation of citizens, as well as parliaments, in decisions about programmes and projects, and

[26] See OECD, "Development aid rose in 2009 and most donors will meet 2010 aid targets", 14 April 2010, available from www.oecd.org.

[27] See OECD, *2008 Survey on Monitoring the Paris Declaration: Making Aid More Effective by 2010*, Paris, 2008.

also facilitates the process of holding Governments to account for development results.

55. Mutual accountability is also very important, but, according to the available date, by the end of 2009 only seven countries had established fully functioning mutual accountability mechanisms,[28] and the resultant changes in provider behaviour have been uneven. Country-level experience shows that national aid policies and joint performance frameworks can help improve mutual accountability.[25]

56. Regarding South-South cooperation, the Governments of countries with developing economies and economies in transition that inform the OECD of their aid effort reported about $9.6 billion of assistance in 2008. Governments of transition economies in Eastern Europe provided more than $800 million, and Turkey provided almost that amount. While this accounts for only about 10 per cent of Development Assistance Committee bilateral aid, the volume of aid has shown strong growth. For example, from 2006 to 2008, the flow of aid grew by almost half in constant prices and exchange rates. In addition, it appears that at least another $2 billion has been provided by non-reporting countries, primarily by China, but with substantial aid also having been provided by India and the Bolivarian Republic of Venezuela. Significant contributions in aid have also been made by Brazil, Nigeria and South Africa. Furthermore, despite the strain of the global financial and economic crisis on many of those providers, it is likely that total contributions rose again in 2009. If pledges are kept, it is thought that total flows could reach $15 billion in 2010.[25]

57. Our current economic model is consumption-led, production-driven and gross domestic product-measured. It has clearly improved the well-being of many societies over time, but its operations have also created significant negative "externalities" in the form of global environmental risks (e.g., climate change) and widespread ecological scarcities (e.g., freshwater shortage). Moreover, it fails to recognize such significant externalities in the accounts of society, which are largely focused on gross domestic product as the key macro-indicator of progress. As a result of these and other factors, our economic activity depletes natural assets whose ecosystem services are a key part of the well-being of the poor, and thus it risks exacerbating persistent poverty. The global risks it creates — both social and environmental — represent serious threats to the well-being of present and future generations.

58. The concept of a green economy in the context of sustainable development and poverty eradication, which will be one of the themes of the United Nations Conference on Sustainable Development, to be held in 2012, could provide an alternative economic model. A green economy has been defined by UNEP as an economy characterized by substantially increased investments in economic sectors that build on and enhance the earth's natural capital or reduce economic scarcity and environmental risks. Such sectors include, inter alia, renewable energy, low-carbon and public transport, energy-efficient buildings, cleaner technologies and manufacturing processes, and improved waste management. A green economy is therefore of relevance to all themes of the current cycle of the Commission on

[28] Afghanistan, Cambodia, Mozambique, Rwanda, the United Republic of Tanzania, Viet Nam and Yemen.

Sustainable Development. Thus, the shift to a green economy entails stimulating investments in more resource-efficient, sustainable production, which in principle should improve welfare by "doing more and better with less". Sustainable production practices reduce resource use and depletion and result in less pollution. Likewise, spurring the demand for more sustainable products through the promotion of sustainable consumption can create new markets for businesses that adopt sustainable production practices, resulting in increased revenue streams and new jobs.

59. Industries that produce basic materials — iron and steel, chemicals, cement, aluminium, and pulp and paper — are among the most energy-intensive industries. It may be difficult to regard such heavy industries as potentially "green". However, reducing their environmental impact, especially their carbon footprint, is a critical task. The increased use of secondary rather than raw materials offers substantial energy savings. In addition, transport, which is vital for daily economic activities, has many environmental, economic and social costs. These include congestion, energy consumption and greenhouse-gas emissions, resource depletion and damage to human health and well-being through air pollution, noise and traffic accidents.

60. Concerns have been raised in various international forums, in particular in the context of the Commission on Sustainable Development and preparations for the United Nations Conference on Sustainable Development, that green economy measures adopted unilaterally or differentially could lead to pressures for green trade protectionism, possibly in the form of green standards, subsidies and border tax measures.

61. On the other hand, a transition to a green economy can present trade opportunities for developing as well as developed countries in certain economic sectors. Brazil, for example, has a strong comparative advantage in bio-ethanol. Examples of such opportunities include the rapidly growing global markets for organic agriculture and biodiversity-based products, which can create both economic and environmental benefits. Moreover, trade financing and trade facilitation may play an important role in helping developing countries gain access to global markets for green goods and services. It is essential to explore the linkages between trade and a green economy to ensure that the multilateral trade system can foster freer trade in environmentally sound technologies and products, improved market access for developing countries, and technology transfer from developed to developing countries, while also avoiding green protectionism.

62. Trade can play a critical role as a connector between sustainable production and sustainable consumption, two essential aspects of the transition towards a green economy. A well-functioning international trade system could foster greater access to markets for environmentally friendly and environmentally enhancing goods and services. Such market creation and market access have the potential to benefit all countries, developed and developing alike.

63. Market-driven product information tools such as voluntary labelling and standards provide one mechanism for tackling unsustainable consumption and production patterns and practices. Such tools provide information about product externalities to consumers whose willingness to pay for more sustainable products creates a market incentive for producers. Standards and labelling can thus constitute useful policy tools for Governments to achieve sustainability objectives in a manner that is more flexible and acceptable than some forms of command-and-control

regulation. Supply chains, given their increasing globalization, have the potential for profound influence on the global market structure and its functioning. It is imperative that their wider use be accompanied by support measures to assist small-scale producers in developing countries to obtain certification at affordable costs.

64. To increase the effectiveness of consumer information tools as a global market tool for continuous environmental improvement and social progress, there is a need for a more systematic and harmonized methodology that will provide a common language for defining what makes products sustainable. This can be done through the creation of a global collaborative initiative that brings together all relevant stakeholders and groupings of consumer-oriented information systems through a coordinated learning process. The objective will be to identify, agree on and promote common principles on how to communicate sustainability information in a legitimate and practical way. Transparency in terms of standards-setting processes, and inclusiveness, allowing space for the priorities of and challenges facing developing countries, should be among the principles underlying such tools so as to enhance their development potential.

65. Communicating the sustainability information of products requires the availability of relevant data. The UNEP Life Cycle Initiative has developed a global framework for an environmental life-cycle impact assessment and a publication on life-cycle management as a business guide to sustainability. Activities in that framework are supported by targeted capacity-building for regional and national networks of life-cycle experts in developing countries. Ongoing activities related to databases will serve as the basis for future exchanges aimed at building compatibility between databases worldwide and supporting the development of national and regional databases in developing countries and countries with emerging economies.

66. Another important issue is sustainable public procurement. While it may be accurate to state that some export commodities and goods (such as fossil fuels, non-certified timber or energy-intensive electronic appliances) can be affected by the adoption of sustainable public procurement, it is also widely recognized that developing and emerging countries have the ability to adjust and could even benefit from greener, socially responsible procurement practices. Governments and corporations engaged in sustainable procurement generally provide sufficient lead time to allow markets to adjust and for suppliers to meet the requested specifications at a reasonable cost. Thus, far from limiting trade flows, the greening of international supply chains could be part of the process of enabling developing countries to acquire the expertise, skills and technologies necessary to improve the sustainability of their own production methods and technologies. Sustainable procurement policies are increasingly employed in both developed and developing countries. Given the size of government procurement budgets, this can be a powerful market-maker for more sustainable products. International cooperation in the development of sustainable procurement policies and systems has advanced considerably over the past decade, in part as a result of the Marrakech Task Force on Sustainable Public Procurement but also as a result of such private-sector initiatives as the International Green Purchasing Network.

67. Clearly, partnerships are essential to achieving sustainable development goals. Many of the challenges that developing countries are facing with respect to greening their economies, addressing the impacts of climate change and natural disasters call

for extended partnerships that go beyond traditional ones. Thus, for example, the Leading Group on Innovative Financing for Development, which includes 55 member countries, 5 observer countries, 16 international organizations and a number of non-governmental networks and organizations from the South and North, has come together to launch initiatives such as the international air ticket levy in order to show that it is politically possible to mobilize significant additional funds through innovative means of financing. Private foundations from developed and developing countries, along with millions of individuals of both large and small means, have also been making a growing contribution. According to OECD, cross-border grants for development assistance by private voluntary agencies totalled almost $24 billion in 2008.[29]

68. Another partnership that provides scientific assessments on ways of decoupling economic growth from environmental degradation is the International Panel for Sustainable Resource Management. It is a partnership designed to bring together academia and decision makers from both developing and developed countries, in government, civil society and the private sector, to support science-based decision-making. It is also initiating a capacity-building programme to support the development of scientific assessment on sustainable consumption and production and resource efficiency in developing countries. Since its launch in 2007, the Panel has grown to include 29 experts and has launched three assessment reports to address policymakers' needs with respect to biofuels, anthropogenic metals stocks and the environmental impacts of production and consumption, focusing on primary products and materials.

69. A joint programme on promoting resource efficiency and cleaner production in developing countries and transition economies has been established by UNEP and the United Nations Industrial Development Organization. The programme has the strategic goal of upscaling the implementation of resource efficiency and cleaner production approaches through the expansion of the national cleaner production centres network and targeted capacity-building to support existing national cleaner production centres and new resource efficiency and cleaner production service providers. The joint programme will also serve as a platform for the promotion of global knowledge and technology transfer through South-South and North-South collaboration.

70. The Partnership for Clean Fuels and Vehicles, with a clearing house housed by UNEP, was launched at the World Summit on Sustainable Development to assist developing and transitional countries in reducing vehicular air pollution through the promotion of lead-free, low-sulphur fuels and cleaner, more efficient vehicles. The Partnership for Clean Fuels and Vehicles has around 120 partners from government, civil society, the private sector, international organizations and institutions of higher learning. It has used a global/regional/national approach in which a global consensus is first developed (for example, with respect to the importance of phasing out leaded fuel); then regional awareness-raising workshops are held, to build consensus within a region; and finally, global and regional recommendations are presented at the country level.

[29] See OECD, *Development Cooperation Report 2010*.

V. Towards a coherent and robust framework for the implementation of decisions taken at the nineteenth session of the Commission on Sustainable Development: possible elements

71. As is well known, the ultimate goal of sustainable development is steady progress towards a future of universally shared human well-being and prosperity within the finite resources of the planet. Sustainable development is based on the knowledge that while there is an ultimate limit to the growth of material consumption, there are no limits to the improvements that can be made in terms of quality of life, prosperity and social well-being. The urgent goal is to achieve the development transition — to raise the living standards of poor countries and households, which will need to increase their material consumption to meet their basic needs — while ensuring that critical ecosystem limits are not exceeded. Accelerating the increase in the living standards of the poor while decelerating or reversing the impact of consumers — in particular high-income consumers — on the natural resources of the planet, will need to occur in tandem. This will depend on a global decoupling of growth in economic activities (production and consumption) from the negative environmental impacts that all too often accompany them.

72. Sustainable consumption and production is, together with poverty eradication and protection of the natural-resource base, at the heart of sustainable development, as noted in the Johannesburg Plan of Implementation. The sustainable consumption and production agenda encompasses important aspects of the challenges in each of the thematic areas of the current cycle of the Commission on Sustainable Development: chemicals, waste management, transport and mining. Thus, a 10-year framework of programmes on sustainable consumption and production can be useful in bringing coherence and coordination to initiatives aimed at improved resource efficiency, the de-linking of economy and environment, and waste and pollution minimization across these as well as other themes and sectors.

73. The Commission on Sustainable Development is the principal policymaking institution for sustainable development at the global level. Among other contributions, the Commission has actively solicited the participation of major groups in policymaking and promoted a particular institutional form, multi-stakeholder partnerships, to implement sustainable development.

74. The most important challenge is how to implement the decisions of the Commission. A number of steps have been taken since the last cycle (the sixteenth and seventeenth sessions of the Commission), including policy dialogues on implementation at the regular sessions and follow-up from the Chairs of the previous cycles.

75. This current cycle offers a unique opportunity to learn from recent experiences and build coherent programmes that would allow for monitoring and concrete targets to achieve the goals set by the Commission in its policy decisions. This could include, inter alia:

(a) Identifying priority actions and initiatives at different levels;

(b) Supporting peer-to-peer learning;

(c) Mobilizing support for the scaling up of successful initiatives and programmes;

(d) Encouraging economic and financial policies and public and private investments, both international and domestic, which promote sustainability in the themes of this cluster;

(e) Providing an enabling environment for and supporting research, innovation and technology cooperation and transfer so as to address the challenges associated with each of the themes and with the promotion of sustainable consumption and production across all themes.

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Item 3 of the provisional agenda*
Thematic cluster for the implementation cycle 2010-2011 — policy session

Policy options and actions for expediting progress in implementation: transport

Report of the Secretary-General

Summary

Transport and mobility are essential preconditions for sustainable development. Adequate transport infrastructure and affordable transport services are still widely lacking in many developing countries, in particular in rural areas. At the same time, increased urbanization and motorization have resulted in unprecedented congestion, wasteful energy use, increased motor vehicle emissions and deteriorating urban air quality in many cities in both industrialized and developing countries, with serious negative impacts on public health, living conditions and climate change. Appropriate policy interventions are needed to support the establishment of affordable, economically viable, socially acceptable and environmentally sound transport systems. Policy incentives and investments need to be targeted at improving and expanding integrated public transport systems, in particular within and between urban areas, and facilitating mobility in rural areas. Policies intended to enhance sustainability should seek to avoid or reduce unnecessary transport and travel where possible, encourage a shift towards high-efficiency and low-carbon modes of transport, and promote system-wide efficiency improvements. Integrated urban and rural transport planning, as well as supportive fiscal and regulatory policies, combined with the development of new technologies and greater international cooperation, are key factors for achieving a transport sector that meets the requirements of sustainable development.

* E/CN.17/2011/1.

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I. Introduction

1. At its eighteenth session, the review session of the implementation cycle 2010-2011, the Commission on Sustainable Development conducted a comprehensive assessment of progress achieved with regard to the thematic cluster that includes transport, chemicals, waste management, mining and the 10-year framework of programmes for sustainable consumption and production patterns, as described in Agenda 21, the Programme for the Further Implementation of Agenda 21 and the Plan of Implementation of the World Summit on Sustainable Development. The Commission identified constraints and obstacles, as well as new challenges and opportunities, with regard to advancing implementation in the thematic area of transport.

2. At its nineteenth session, the Commission will take decisions on policy options and practical measures to expedite implementation in the thematic areas of the cluster. The session will be preceded by an Intergovernmental Preparatory Meeting, which will be held from 28 February to 4 March 2011 to discuss policy options and possible actions to address constraints and obstacles identified at the eighteenth session.

3. The present report is a contribution to the discussions at the Intergovernmental Preparatory Meeting on policy options and practical actions to expedite progress in the transport sector. The report draws on substantive inputs and information provided by Governments, major groups and United Nations programmes and agencies, in particular the United Nations Centre for Regional Development, the United Nations Environment Programme (UNEP), the United Nations Human Settlements Programme, the World Health Organization (WHO) and the five regional commissions. The United Nations Conference on Trade and Development (UNCTAD), the United Nations Development Programme, the International Maritime Organization and the International Civil Aviation Organization also contributed assessments in their respective sectors.

4. The report also benefited from information and data provided in the reports recently released by the World Bank Group, the regional development banks, the International Transport Forum of the Organization for Economic Cooperation and Development and professional international transport sector associations, including the International Union of Railways, the International Road Transport Union, the International Air Transport Association, the International Freight Association, the International Organization of Motor Vehicle Manufacturers and the International Automobile Federation.

5. The report should be read in conjunction with the reports of the Secretary-General to the Commission on chemicals (E/CN.17/2011/5), waste management (E/CN.17/2011/6), mining (E/CN.17/2011/7) and the 10-year framework of programmes on sustainable consumption and production patterns (E/CN.17/2011/8), which will also be under consideration by the Commission at the Intergovernmental Preparatory Meeting. Additional background papers on selected transport policy issues and options and a compendium of good practices and country experiences have also been prepared by the Secretariat and can be accessed in electronic form at the website of the Commission (www.un.org/esa/dsd/csd/csd_csd19.shtml).

II. Policies for development of sustainable transport

6. Transport and mobility are essential preconditions for economic growth, social development and global trade. However, they are also often associated with significant environmental impacts, including atmospheric pollution; thus, they pose major challenges for the achievement of sustainable development.

Box 1
Key issues in transport and sustainable development at a glance

Rural transport	1 billion people in developing countries do not have access to an all-weather road
Transport and social responsibility	An estimated 75 per cent of maternal deaths could have been prevented through timely access to care related to childbirth
Urban transport	By 2025 more than half of the population in the developing world will be living in cities
Roads and highways	More than 60 per cent of the world's paved roads are in high-income countries
Road safety	Around 1.2 million people die each year in road accidents; 90 per cent of these deaths occur in the developing world
Railways	Between 2000 and 2005, global rail freight grew by 25 per cent and land passenger traffic grew by about 19 per cent
Shipping and ports	Maritime transport moves more than 90 per cent of world trade by volume
Air transport	Around 35 per cent of international trade by value is carried by air transport
Transport, logistics and facilitation	Trade-associated transport costs in landlocked and small island developing countries are much higher and the volume of trade is much lower than in coastal countries
Transport dependence on fossil fuels	Transport relies on oil and petroleum products for 95 per cent of the energy use
Air pollution	Transport is a significant contributor to local air pollution and associated public health impacts
Climate change	Transport is responsible for 23 per cent of global energy-related greenhouse gas emissions, and its contribution is increasing rapidly

Source: World Bank.

7. Economic activity, globalization, national and international trade and transport are closely interlinked. In spite of gradual gains in productivity and energy efficiency, global transport energy use is continuously growing at an average rate of between 2 per cent and 2.5 per cent per annum. The transport sector relies on oil and petroleum products for more than 95 per cent of its increasing energy needs. Owing to its continued high reliance on fossil fuels, the transport sector not only exacerbates economic vulnerability and trade imbalances, in particular among net oil importing countries, but also represents the sector with the fastest growth in greenhouse gas emissions owing to the rapid growth in motorized mobility.

8. As observed by the Commission at its review session in May 2010, implementing policies and taking action to enhance sustainability of transport is increasingly urgent. Policies and practical measures that achieve a decoupling of economic growth and expansion of transport activity and a gradual decarbonization of transport energy systems could make significant contributions to a greener and more sustainable transport economy.

9. Policies for enhancing sustainability should promote appropriate combinations of measures that can avoid or reduce unnecessary transport and travel where possible, encourage a shift towards highly efficient and low-carbon modes of transport, and promote system-wide efficiency improvements. In addition, voluntary initiatives and programmes to offset greenhouse gas emissions from transport can also contribute to a reduction of net environmental impacts.

10. All modes of transport and their efficient integration are important, including road, rail, maritime and air transport, as well as non-motorized transport such as walking and cycling. Multimodal systems can provide an array of options for passenger and freight transport and can enable developing countries to participate more fully in international trade as well as foster national and regional commerce.

A. Expanding access to sustainable transport

11. Basic transport infrastructure and services are still inadequate or lacking in many rural areas of developing countries, making it difficult for the rural poor, including women, young people and children, to receive basic social services such as those related to health and education, and for workers to access jobs. About 1 billion people live more than 2 kilometres from the nearest all-weather road. Inadequate rural transport infrastructure perpetuates poverty, constraining the marketing of agricultural produce and other income-generating opportunities, and thus hampers efforts to achieve internationally agreed development goals, including the Millennium Development Goals.

Box 2

Rural transport infrastructure for poverty eradication and sustainable development: the experience of India

In 2000, 30 per cent of the 855,042 villages in India (representing about 300 million people) were still without all-weather roads and lacked access to basic services and markets. Hence, the Government launched the Prime Minister's Rural Roads Programme "Pradhan Mantri Gram Sadak Yojana", implemented by the National Rural Roads Development Agency with domestic and international funding provided through the national central road fund. The target of the programme was to provide access through the construction of all-weather roads to all rural villages and communities inhabited by more than 500 persons (or by more than 250 persons in mountainous tribal regions). Under the programme, 375,000 km of rural all-weather roads were built and 372,000 km of existing rural roads were upgraded, benefiting a total of 178,000 villages. The programme resulted in the following achievements:

Poverty reduction:	According to a recent report, for every 1 million rupees spent on rural roads, 163 people were lifted out of poverty
Income rise:	Household incomes of those gaining access to roads rose by 50 to 100 per cent
Market prices:	Farmers received better prices for their products as they could access markets directly, cutting out intermediaries and reducing the spoilage of perishable products
Agricultural productivity:	Agricultural and animal husbandry practices were modernized; improved seeds, fertilizers and veterinary services became available; yields of paddy almost tripled from an average of 0.6 tons per acre to 1.7 tons per acre
Rural employment:	Access to jobs improved, new (micro) businesses started up, diversifying the rural economy
Capacity-building:	Training of local people (e.g. local contractors) enabled income rise and opened new job opportunities
Health:	Access to health facilities and services, medicines and supplies was facilitated
Education:	Access to education facilities was facilitated with a 10 per cent increase in the literacy rate; a reduction of the gender gap as it was easier for girls to attend school; and improved availability of teachers
Social impacts:	Communities and individuals were empowered through mobility such as increased networking and family visits

Source: Indian Prime Minister's Rural Roads Programme and World Bank.

12. Greater investment in integrated rural development programmes, including providing adequate access to all-weather roads, contributes to poverty reduction, thus paving the way for achieving the Millennium Development Goals related to poverty by 2015. As appropriate, national sustainable development strategies and plans should include construction and improvement of rural roads to be designed and constructed with the active participation and involvement of the communities concerned. In this endeavour, the local communities should be supported with capacity-building, technical support and financial assistance from both domestic and international sources. The particular needs of least developed and landlocked developing countries, especially in sub-Saharan Africa, and of small island developing States, require urgent attention.

B. Promoting urban public transport for sustainable development

13. Transport poses great challenges in many of the rapidly growing metropolitan and other urban areas of developing countries, where lack of adequate planning and poor public transport services result in economic losses as a result of traffic congestion, high consumption of fuels and air pollution, with associated negative impacts on public health.

14. The WHO Healthy Cities Air Management Information System indicates that many cities suffer from poor urban air quality, with particulates, nitrogen oxides and sulphur oxides at times exceeding recommended maximum levels by a factor of up to four. Figures 1 and 2 provide a comparative overview on local air pollution in selected cities.

Figure 1
Particulate matter in OECD industrialized cities (micrograms per cubic metre, 2006)

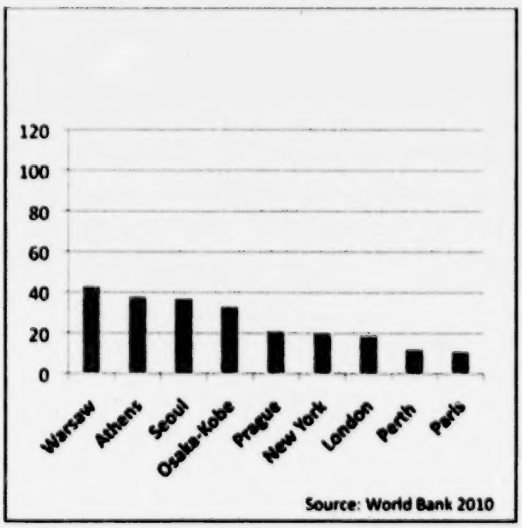
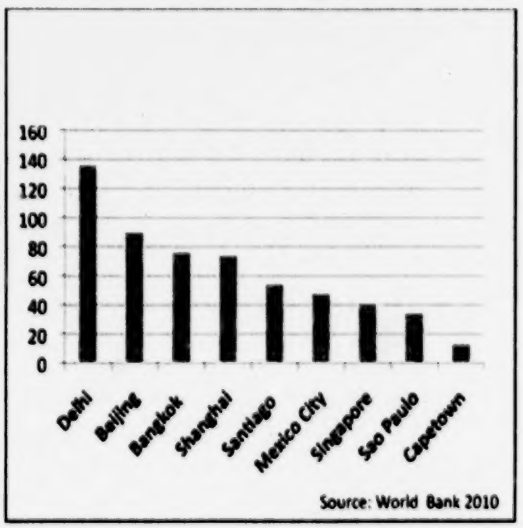


Figure 2
Particulate matter in developing countries (micrograms per cubic metre, 2006)



15. Comprehensive, coherent and effective transport policies and measures are urgently needed to address the growing challenges of urban transport. Policies will need to comprise a package of measures, including: (a) improvement and expansion of urban public transport systems that are more affordable, safe, clean, reliable, time-saving and environmentally sound; (b) facilitation and encouragement of non-motorized transport modes in urban centres, including greater use of walking and cycling for short-distance trips in good weather; (c) coherent regulatory measures on the use of private motor vehicles and on commercial urban transport service providers, such as operators of small buses, vans, taxis, three-wheelers and pedicabs; and (d) integration of transport considerations in urban development planning in order to ensure more sustainable urban transport systems in the future by reducing the need for travel and the intra-urban travel distance in cities that are yet to be built.

16. In many cities in developing countries, city administrations have recognized the advantages of bus rapid transit systems. A total of 152 cities already have such systems, which are characterized by buses that run on segregated lanes parallel to local traffic. In comparison with light rail transit or subway systems, bus rapid transit systems are much less capital intensive, while still achieving high transport efficiency. Enhanced bus rapid transit systems offer climate-controlled buses with platform-level entry, pre- or post-travel payment of fares and global positioning systems to inform customers of expected waiting times and transfer connections. Modern bus rapid transit systems can accommodate up to 10 times more passengers than mixed traffic.

17. Bus rapid transit and other urban public transport systems offer many direct and indirect local, national and global benefits. A recent study for Mexico City which estimated and monetized bus rapid transit system costs and benefits, demonstrated that the sum of public benefits, including economic time saved, avoided health problems, and fuel costs, by far exceed the costs of the system. In addition, bus rapid transit and other public transport infrastructure investments help to avoid significant amounts of greenhouse gas emissions. Several initiatives, including the Partnership on Low Carbon Sustainable Transport, and studies have been launched recently to explore the eventual inclusion of bus rapid transit and other public transport projects as nationally appropriate mitigation actions in a future climate change agreement and emission trading system.

18. While the costs of individual buses and bus rapid transit systems are moderate, many more systems are urgently needed to tackle the growing urban transport problems in developing countries and in cities that do not have such systems in place. For many developing countries, bus rapid transit systems would be affordable only with external technical assistance and financial support. International financial institutions could play a greater role in supporting urban bus rapid transit systems in developing countries. These systems can also offer a low-cost solution to urban traffic congestion in industrialized countries.

19. A growing number of developing country cities have also invested in underground or elevated urban light-rail, metro and commuter rail systems, in spite of their high initial investment costs. New systems with a few trunk lines can greatly benefit from feeder buses and unified fare systems to increase the number of passengers during the start-up phase. Due to high construction costs and private financing, metro tariffs are still rather high in many cities.

20. Experience has shown that the private sector and public-private partnerships can play an important role in financing and managing urban public transport systems. At the same time, the promotion of public transport can only be successful if fares remain affordable, including for the urban poor. This implies that public transport operators may have to be remunerated for the public health, socio-economic and environmental benefits they generate.

21. Area licensing, road pricing and parking charge schemes, such as those applied in Singapore, London and Paris, have proved to be effective in reducing urban vehicular traffic. Some cities, in particular those where air pollution poses a major threat to human health, have implemented temporary restrictions on the use of cars (e.g., by day of the week, number plate or minimum occupancy). Car-free days or temporary road closures for biking, walking or street markets have also become increasingly popular.

22. While passenger vans and taxis can contribute to congestion on main routes, they provide important and useful feeder services to mass transit systems and should be well integrated into urban transport system planning. Taxis are the motor vehicles that move around the most in urban areas. In cities where urban air pollution is a serious concern, municipalities may consider reviewing van and taxi fleet licensing and management with a view to improving services, encouraging the modernization of vehicles and fleets, ensuring the most economical use of fuels, monitoring transport tariffs, controlling vehicle emissions and ensuring adequate but not excessive competition, particularly between public and private services.[1]

23. Encouraging walking and cycling within inner city centres and in urban areas requires adequate provision of segregated bicycle lanes, without which cycling may be unsafe. This should be supported by provision of sufficient bicycle parking facilities, and related regulations are also essential. A shift is needed in investment towards roads that also provides for infrastructure for non-motorized transport. A growing number of cities, including in developing countries, have introduced bicycle rental systems. Like short-term car rental and car-sharing, bicycle rental also enhances sustainable mobility.

24. Decisions on transport policies, infrastructure and services largely fall under the authority of city administrations, municipalities and other local authorities. Since 1990, the International Council for Local Environmental Initiatives has facilitated the exchange of experience among city administration and other local authorities, including in the area of sustainable transport. The C40 cities initiative, supported by the Clinton Climate Initiative, also recognizes the important role of cities in designing sustainable transport projects and in mitigating climate change.

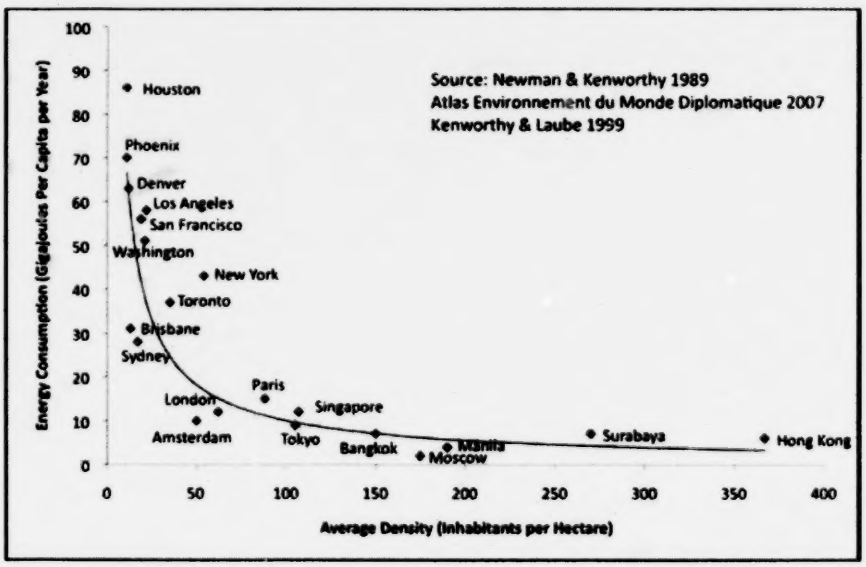
25. Comprehensive sustainability and transport considerations need to be fully integrated into urban planning and supported by the requisite policies and regulations. The integration of urban and transport planning is of particular importance considering the growing future challenges of urbanization. The world

[1] Policy options and practical experience in advancing sustainability in urban transport by modernizing and greening vans and taxi fleets will be the focus of an intersessional regional expert group meeting to be co-organized by the Transport Engineering Programme of the Alberto Luiz Coimbra Institute at the Federal University of Rio de Janeiro and the Department of Economic and Social Affairs of the Secretariat, to be held in Rio de Janeiro, Brazil, in April 2011.

population is projected to continue to increase, particularly in developing countries. At the same time, rural-to-urban migration is expected to continue in many developing countries. By 2025, one billion more people will need to be accommodated in existing and new cities. Appropriate urban development planning is, therefore, an imperative.

26. Urban public transport systems require a minimum population density and public transport demand to be economically viable. This can be achieved through appropriate land-use policies, mixed-use development and medium-to-high population densities along key corridors.

Figure 3
Urban density and transport related energy consumption



27. In figure 3, a clear relationship is seen between population density and per capita energy use for transport. The higher the population density of the urban population, the lower the per capita energy consumption for urban transport. In order to ensure sustainability in the longer term, city planners could aim at urban population densities in residential areas of more than 50 residents per hectare, in which case the per capita annual energy consumption for urban transport can be expected to be below 20 gigajoules, assuming that good public transport services are available and at least 40 per cent of all trips are made by either non-motorized or public transport.

28. In order to implement more sustainable urban development policies, and apply effective low-energy urban transport models in practice, continued expert information exchange as well as capacity-building for the assessment and training of urban and transport planners in developing countries will be essential.

C. Enhancing modal shifts

29. The projected continued growth of population and economic activity will lead to significant future increases in mobility and transport demand, particularly in developing countries. Therefore, the long-term sustainability of transport systems will require coordinated efforts to systematically enhance modal shifts, both from private to public transport and from energy intensive to low carbon modes of transport.

Figure 4
Freight transport CO_2 emissions (100 tons cargo, Basel-Rotterdam, 700 km)

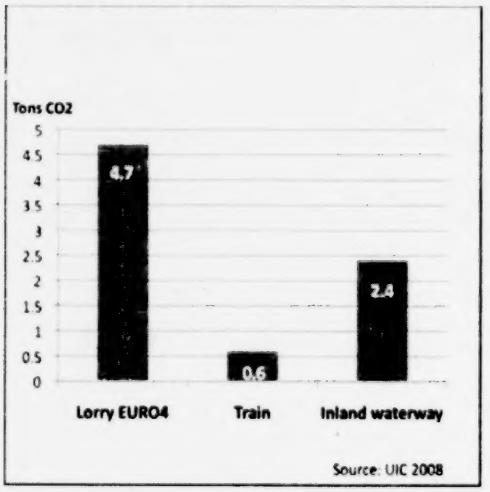
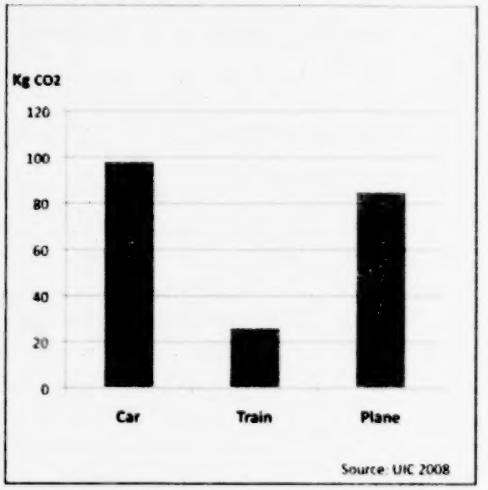


Figure 5
Passenger transport CO_2 emissions (1 person, Berlin-Frankfurt, 545 km)



30. In densely populated urban areas and city centres, and with the appropriate infrastructure and support, walking, cycling and public transport should become the preferred transport modes. For high-volume passenger and freight transport over long distances or between commercial centres and cities, railways and waterways often offer environmentally preferable transport options.

31. Where appropriate infrastructure and transport options exist, railways and waterways offer low-carbon options for passenger or freight transport. In Europe, travelling by rail is 3 to 10 times less CO_2 intensive than road or air transport. Whereas railways account for a transport market share of between 7 per cent and 10 per cent, the contribution of rail to European Union transport sector emissions is below 2 per cent. In addition and as a part of its sustainable development policies and programmes, the European Union rail sector has committed itself to reducing specific emissions from rail transport by 30 per cent over the period 1990-2020.

32. Anticipating continued growth in transport demand, railway authorities in Brazil, China and India and several other developing countries are investing in or planning the modernization and expansion of railway networks, including some very modern fast and high-speed train connections linking the centres of major cities.

Investments in the construction of new railways can be very costly, but can also offer very significant economic, social and environmental benefits in the long term. Opportunities for greater international and South-South cooperation in the construction of modern inter-city and high-speed train connections should be further explored, including for proposed cross-border rail links.

33. Where adequate waterway infrastructure and sufficient water flow is available, inland and coastal navigation can satisfy transport demand, often at comparatively low operating costs and transport prices. Increasing vessel dimension and the use of push barges and convoys makes inland and coastal shipping a cost-effective and comparatively sustainable transport option, in particular for moving bulk cargo or containers. However, stringent emission regulations are important to control air pollution from the combustion of heavy fuel oil, and the potential vulnerability of inland water transport to climate change needs to be carefully assessed.[2] In small island developing States, the transport infrastructure, notably harbours and coastal roads, is also vulnerable to potential natural disasters, such as tsunamis, and climate change.

D. Improving transport technologies and systems

34. Greater public and private investment in research and development on new low-carbon transport technologies and their transfer to developing countries is urgently needed.

35. Most countries that manufacture motor vehicles also regulate fuel quality, fuel economy and vehicle emissions. Whereas standards, regulations and test protocols differ among countries, the aims are common and include: (a) curbing the growing motor fuel consumption; (b) reducing energy import dependence; and (c) protecting urban air quality. Experience has shown that mandatory fuel economy standards and mandatory periodic motor vehicle inspections and emission testing can offer useful and effective tools for curbing growing fuel use and for improving urban air quality, provided that the applicable regulations are effectively implemented and enforced.

36. In May 2009, the President of the United States of America endorsed a new national policy aimed at both increasing fuel economy and reducing greenhouse gas emissions for all new cars and trucks sold in the United States. The new standards, covering model years 2012 to 2016, and ultimately requiring an average fuel economy standard of 35.5 miles per gallon (mpg) in 2016, are projected to save 1.8 billion barrels of oil over the life of the programme with a fuel economy gain averaging more than 5 per cent per year and a reduction of approximately 900 million metric tons of greenhouse gas emissions.

37. The Global Fuel Economy Initiative and the "50by50" challenge were launched with the participation of UNEP with the aim of promoting further research, discussion and action to improve fuel economy worldwide. The Initiative provides an important forum for policy dialogue that involves representatives of leading motor vehicle manufacturers. It also supports developing countries in establishing their own fuel economy policies.

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[2] For a detailed discussion of sustainable river transport, see P. Gernot, "Sustainable transport: a case study of Rhine navigation", *Natural Resources Forum*, Vol. 34, No. 4 (November 2010), pp. 236-254.

38. The Partnership for Clean Fuels and Vehicles of UNEP has successfully assisted many developing countries in reducing vehicular air pollution through the promotion of lead-free, low-sulphur fuels and cleaner vehicle standards and technologies. Enforcement of fuel quality standards and improvements can significantly reduce urban air pollution. In many developing countries and their cities, urban air quality is still frequently below the standards recommended by WHO.

39. Some developing countries import many used motor vehicles, sometimes even old ones which can be unsafe and inefficient. Regulating the trade in second-hand vehicles is an important policy option, in particular for developing countries.

40. Compressed natural gas offers a preferable alternative to diesel engines in urban traffic. It produces comparatively low emissions, including nitrogen oxide. Moreover, the natural gas engine is also appreciably quieter. Other factors in favour of commercial vehicles being equipped with natural gas engines are the 25 per cent lower well-to-wheel CO_2 emissions and the relative abundance of natural gas reserves. The comparatively low price of natural gas also reduces operating costs. In many countries, compressed natural gas is used in public buses, taxis and other commercial vehicles servicing urban areas.

41. Sustainably produced biofuels can also contribute to diversification of energy sources and supplies. Biofuels currently account for about 2 per cent of global fuel consumption for transport. A growing number of countries support domestic production of biodiesel and ethanol through subsidies, reduced taxes and regulations requiring mandatory blending of biofuels with petrol or diesel fuel. However, only a limited number of countries have favourable climatic conditions and the land and water resources necessary for large-scale biofuel production.

Box 3

Diversification of motor fuels: the ethanol programme of Brazil

For many years, the Government of Brazil has placed great emphasis on the promotion of renewable energy, including the production and use of biofuels. At present, there are some 325 plants in operation processing 425 million tons of sugarcane per year, half of which are used for ethanol production. Facilities produce sugar, ethanol and electricity from bagasse. Almost two thirds of the ethanol is being produced in the state of São Paulo, where most of the large plants are located. In 2006, approximately 17.8 billion litres of ethanol were produced, using 2.9 million hectares of land. In Brazil, the ethanol programme is replacing, at a very competitive price, approximately 40 per cent of the gasoline that would otherwise be used in the country's fleet of motor vehicles. The ethanol programme has made a significant contribution not only to local economic development and foreign exchange savings, but also to reducing Brazil's greenhouse gas emissions.

Sources: Rodrigo Augusto Rodrigues and José Honório Accarini, "Brazil's biodiesel program" (2008); and José Goldemberg, "The Brazilian biofuels industry" (2008).

42. In recent years, a growing number of motor vehicle manufacturers have announced plans or started production and sales of hybrid and plug-in electric vehicles, primarily for use in urban areas. In China, and in a growing number of other countries, electric bicycles have become popular. Electric vehicles are quiet, produce no emissions at the point of use and are, therefore, popular for use indoors (e.g. in hospitals, airports, exhibition halls and similar facilities) and in environmentally protected areas. Several motor vehicle manufacturers have also successfully tested and demonstrated hydrogen-based emission-free fuel-cell technologies.

43. When assessing greenhouse gas mitigation options, it is important to consider life cycle impacts. Electricity and hydrogen can offer important opportunities to decarbonize the transport energy system, but the realization of full-cycle carbon reduction depends on the way in which the electricity and hydrogen are produced. Greater use of electricity or hydrogen for private motor vehicles would be sustainable only if future systems are increasingly based on renewable sources of energy.

44. A gradual transition towards greater use of electric vehicles will also only advance sustainable development if the batteries necessary for on-board energy storage are affordable and if the growing quantities of lithium needed in these batteries are produced in a sustainable way.

45. The Senior Expert Group Meeting on Sustainable Development of Lithium Resources in Latin America: Emerging Issues and Opportunities, organized jointly by the Economic Commission for Latin America and the Caribbean and the Department of Economic and Social Affairs of the Secretariat in Santiago in November 2010, provided an opportunity for information exchange and comprehensive analysis of the various economic, social and environmental dimensions of lithium carbonate production. The meeting concluded that lithium can be extracted from salt flats and associated brines in a sustainable manner using a variety of technologies. There are potentially significant resources, in particular in the so-called "lithium triangle", which includes Chile, Argentina and the Plurinational State of Bolivia. The meeting concluded that no shortages in the global supply of lithium needed to be expected, but also called upon all countries producing lithium-ion batteries to plan and initiate appropriate recycling systems and related legislation in a timely manner.

46. Innovations to make transport safer, faster, more affordable and more environmentally benign are urgently needed. New information technologies, such as global positioning and intelligent transportation systems, including "smart highway" systems, provide many opportunities to facilitate traffic flows, reduce pollution levels and increase transport safety. More incentives should be provided to stimulate indigenous innovations in developing countries.

47. Clean fuel, alternative vehicle and advanced information technologies are available mostly in industrialized countries. In most developing countries, no or only limited capital is available to finance the necessary research and technology development. Much greater sharing and transfer of cleaner transport technologies to developing countries will be needed if sustainable transport systems for all are to be realized.

E. Improving transport safety

48. Safety is an important dimension of sustainable transport. Every year, 1.2 million people are killed and an additional 50 million people are injured as a result of road crashes, with about 90 per cent of such accidents taking place in low- and middle-income countries. According to WHO, it is estimated that annual economic losses related to road traffic injuries amount to some $518 billion and cost Governments between 1 and 3 per cent of the gross national product. Unless immediate measures are taken, road accidents are predicted to become the fifth leading global cause of death by 2030.

49. At its sixty-fourth session, the General Assembly adopted resolution 64/255 on improving global road safety, in which it welcomed the declaration adopted at the first Global Ministerial Conference on Road Safety, held in Moscow on 19 and 20 November 2009, and proclaimed the period 2011-2020 as the Decade of Action for Road Safety. All Member States were invited to define their own national road traffic casualty reduction targets, formulate national strategies and implement the corresponding regulatory initiatives, including regulations on seat belts, child restraints, helmets, drunk-driving and speeding. Vehicle and driver registration, training and inspections are all fundamental to road safety.

III. Strengthening the enabling environment for implementation

A. Enhancing investment in transport infrastructure and services

50. Continuing globalization and increasing trade will require enhanced investment in transport infrastructure, facilities and services if they are to become sustainable. Most public transport infrastructure and its maintenance and expansion are financed by the budgets of national, provincial and local governments and by the private sector. In addition to national development banks and transport development corporations, international financial institutions will also need to play an increasingly important role.

51. Conventional lending and project financing by the World Bank Group and the regional development banks has traditionally emphasized road transport infrastructure, which typically accounted for some 75 per cent or more of all transport project financing. In the fiscal year 2010, World Bank transport sector lending amounted to $9.4 billion, representing a 43 per cent increase over 2009. The World Bank Group has recently adopted a new transport financing strategy in which transport safety, urban transport systems and environmental and social concerns are projected to play a greater role. At present, the World Bank supports more than 200 transport projects in developing countries with a total net commitment of over $34 billion, representing 21 per cent of the Bank's project portfolio.

52. Carbon finance support for the transport sector is generally limited in scale. There are considerable methodological difficulties in determining and measuring the mitigation potential of specific transport policies and projects. Furthermore, there is often a lack of the data required for measuring, reporting and verifying mitigation actions. Hence, only very limited carbon finance support has become available so far for sustainable transport, in spite of the fact that transport is the fastest growing source of greenhouse gas emissions. In addition, availability of financing from the

Global Environment Facility for transportation projects is very limited. Greater financial support is urgently needed to invest in sustainable low carbon transport in developing countries.

53. Many large transport infrastructure projects have recently been completed, and many are being implemented or planned, including roads and highways, railways, bridges and tunnels, sea and dry ports, airports, canals, waterways and pipelines. Comprehensive and inclusive technical and financial planning, including detailed social and environmental impact assessment studies, remain critical to ensure the long-term sustainability of such investments.

54. Planning sustainable transport systems, including long-distance cross-border transport corridors, requires well-coordinated multimodal integration. The construction or expansion of new ports or airports needs to be accompanied by the appropriate upgrading of transport infrastructure and services in the associated hinterland.

55. Transport technologies and trade flows change over time. With the rapid growth in air traffic, the capacities of inner-city airports are quickly becoming inadequate. With growing containerization, many inner-city harbours also do not have the space needed for expansion. However, the relocation of transport activities can offer attractive opportunities for urban redevelopment, for example by converting former piers and warehouses into residential, commercial or recreational zones and facilities.

56. Planning and construction of transport infrastructures need to anticipate potential long-term future changes. River transport, waterways, canals and harbours can be affected by changes in precipitation, droughts or floods, or sea-level rise. Appropriate and environmentally sustainable water management is thus essential.

57. Ninety per cent of world trade by volume is transported by ships. During the past two decades, the average size and capacity of new ships has continuously grown. Shipping is a relatively efficient mode of transport with comparatively low energy use and CO_2 emissions per unit of freight moved, but there remains a need to work to improve fuel quality. Several countries, including Panama, are currently investing in the expansion of transport infrastructure to facilitate global trade. When completed, the ongoing expansion of the Panama Canal will significantly facilitate the transit of ships, including very large vessels.

58. Receding polar ice may make new Arctic sea lanes navigable by commercial shipping, possibly cutting the distance between ports in north-east Asia and ports in northern or central Europe or on the North American east coast by up to 4,000 nautical miles. Further international collaborative study could facilitate an assessment of potential future benefits and the environmental safeguards required.

59. Travel for domestic and international tourism is a rapidly growing service industry creating employment and income opportunities. However, tourism is often associated with high energy consumption. With growing environmental awareness, eco-friendly forms of travel and leisure, including hiking, biking and boating, are becoming increasingly popular in a growing number of countries. This is particularly true in Europe, where public investment in the required infrastructure, including short- and long-distance hiking trails, bicycle paths and other recreational facilities, is relatively advanced. Agro- and eco-tourism can significantly contribute

to the economic revitalization of rural and peripheral areas, and thus contribute to sustainable development.

B. Enhancing policy coherence, integration and stakeholder participation

60. Most Governments have many options and tools to directly and indirectly influence business and consumer decision-making on transport and mobility. It is essential to ensure that these policies, including fiscal policies, such as taxation and subsidization, are implemented in a consistent and coherent manner.

61. Decision-making on transport sector investment is often decentralized with local, regional and national public sector and parastatal institutions taking charge of different elements of the transport system. Inter-institutional collaboration is essential to ensure cost-effective planning and rational investment, in particular in situations in which the institutional mandates, objectives and agendas vary.

62. A total of 22 Asian countries endorsed the Bangkok Declaration for 2020: Sustainable Transport Goals for 2010-2020, in August 2010, listing 20 actions oriented towards the coherent and comprehensive development of sustainable transport in the region, including improving access to goods and services, improving modal share of non-motorized transport, public transport, rail and boats, and reducing the energy and emission intensity of transport technologies.[3]

63. In the Economic Commission for Europe (ECE) region, the Transport, Health and Environment Pan-European Programme brings together Government representatives of the concerned ministries and other stakeholders. The workplan for the programme for the period 2009-2014 seeks to support national action and international cooperation to develop a platform to: (a) attract and support investments in environment- and health-friendly transport; (b) build capacity for better integration of transport, health and environment policies; (c) share and disseminate good practices; and (d) enhance monitoring and reporting mechanisms in implementation.

64. Many fiscal policy tools, including taxation and subsidies, can significantly influence costs and prices of fuels, transportation tariffs and vehicles and should, therefore, be applied in a very consistent and coherent manner that conforms to market requirements. It is essential to avoid situations in which the effects of one policy measure counteract the intended effects of another.

65. There is a perception that investments in and the maintenance of public transport, including urban public transport, require high subsidies, some of which may not always be justified. The public policy debate often disregards the fact that there are many large hidden subsidies benefiting private car users in urban areas.[4]

66. Public transport, notably public buses, often remain stigmatized as the "poor man's car". It is essential to ensure that urban public transport is safe, clean, fast, environmentally sound and affordable. Ideally, public transport tariffs should be

[3] Available from www.uncrd.or.jp.

[4] See International Council for Local Environmental Initiatives, "Hidden subsidies for urban car transportation: public funds for private transport" (Freiburg, Germany, ICLEI European Secretariat, 2005).

lower than the marginal costs of using private motor vehicles. Only where and when these conditions are met, can public transport be expected to become the preferred transport choice for all.

67. Transport policymaking tends to affect the interests of many stakeholders who may be in favour of or opposed to specific transport policies or projects. Transparent and inclusive participatory decision-making processes are essential to ensure that policies and project decisions are ultimately accepted and supported by the public. In situations in which the public clearly benefits from a public transport or infrastructure policy or project, individuals who suffer disadvantages should always be compensated in a fair and transparent manner.

C. Facilitating international trade and transport cooperation

68. The landlocked developing countries find themselves disadvantaged in their development because of inherent geographical difficulties that deprive them of direct access to seaborne trade — long distances from major international markets, cumbersome transit procedures, inadequate transport infrastructure, and dependence on infrastructure and the institutional quality of coastal transit countries. These challenges not only affect economic development and growth, but have major ramifications for the social and environmental aspects of development, including the achievement of the Millennium Development Goals.

69. The Almaty Programme of Action: Addressing the Special Needs of Landlocked Developing Countries within a New Global Framework for Transit Transport Cooperation for Landlocked and Transit Developing Countries, adopted in 2003, has the overarching goal of forging partnerships to overcome the special problems of landlocked developing countries. The Programme recognizes the direct link between transport, international trade and economic growth on the one hand, and the achievement of the Millennium Development Goals on the other. It aims at ensuring fuller and more effective integration of the landlocked developing countries into the global economy through the implementation of specific actions to be undertaken by all relevant stakeholders in five priority areas, namely: (a) fundamental transit policy issues; (b) infrastructure development and maintenance; (c) international trade and trade facilitation; (d) international support measures; and (e) implementation and review.

70. In accordance with the provisions of the relevant General Assembly resolutions, including resolution 64/214, developments affecting transit and land transport to and from the 30 landlocked developing countries in Africa, Asia and Latin America is being periodically reviewed by the Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States and the secretariat of UNCTAD. Several recent studies have shown that many of the landlocked developing countries and their minimal manufactures exports were the most seriously affected by the recent global financial and economic crisis.

71. Small island developing States and their prospects for sustainable development are also often negatively affected by diseconomies of scale in trade and transport, leading to higher per unit transport costs, which in turn lead to low trade volumes. Low trade volumes often do not justify investment in technologies and transport infrastructure. In order to address these interrelated challenges, small island

developing States require immediate and substantial international support, including through retaining market access preferences for their exports, grants or concessionary financing for transport, information technologies and communication equipment, as well as assistance in accelerating the use of renewable energy, making tourism sustainable and tapping better the potential of island cultures.

72. Intergovernmental agreements on cross-border road and rail transport networks and the related trade facilitation agreements, such as those facilitated by the Economic and Social Commission for Asia and the Pacific, the Economic and Social Commission for Western Asia and ECE, have played an important role in enhancing sustainable development and cooperation at the regional level. Similar efforts have been proposed for intergovernmental and inter-agency collaboration in Africa with a view to elaborating and concluding an intergovernmental agreement on a trans-African highway.

73. After preparatory work carried out under the auspices of the United Nations Commission on International Trade Law, the Convention on Contracts for the International Carriage of Goods Wholly or Partly by Sea was adopted by the General Assembly in December 2008. The Convention, which requires 20 ratifications to enter into force, was opened for signature at a special signing conference held in Rotterdam, the Netherlands, in September 2009 and is known as the "Rotterdam Rules". Policymakers will need to consider the merits of the Convention and decide whether it complies with their expectations.

D. Promoting employment, development and sustained economic recovery

74. The transport sector employs millions of people worldwide. All transport related industries, including the automobile industry, as well as employment in these sectors, have been seriously affected by the global financial and economic crisis of 2009, which caused major decreases in global production and international trade and a steep decline in exports, first in the developed countries and then in the developing countries. As a result, many transport sector employees have lost their jobs and income. While Government interventions in the form of deficit spending for economic recovery and stimulus packages seem to have prevented the worst possible impacts in the short run, long-term impacts on the transport sector remain unknown.

75. Some economists suggest that further economic stimulus packages may be necessary to support a gradual global economic recovery process. For the enhancement of overall sustainable development, it is essential that a growing portion of stimulus funding be directed towards the development and deployment of public transport and greener transport technologies, rather than funding only conventional transport infrastructure projects that are ready to start physical implementation. Economic stimulus programmes should provide opportunities for creating new green jobs in the transport sector.[5]

[5] Organization for Economic Cooperation and Development (OECD), Meeting of the OECD Council at the Ministerial Level (Paris, 27-28 May 2010), *Interim Report of the Green Growth Strategy: Implementing our commitment for a sustainable future*.

E. Mainstreaming climate change considerations in transport policy formulation

76. The decoupling of transport services and energy use is important for mitigating climate change and improving efficiency. In light of the recent volatility in international energy prices, the development of alternative fuels, produced in a sustainable way, including compressed natural gas, ethanol and biodiesel, can offer diversification of transport fuels as part of an array of options for sustainable transport. There is also need to deploy cleaner fossil fuels.

77. Enhancing the modernization of transport technology and redefining the understanding of mobility, including thinking in terms of providing mobility services and promoting climate-friendly mobility management, can curb the projected growth in greenhouse gas emissions and support sustainable development.

78. ECE and its Inland Transport Committee have established the World Forum for Harmonization of Vehicle Regulations, which administers three important international agreements, adopted in 1958, 1997 and 1998, pertaining to uniform prescriptions for wheeled vehicles, equipment and parts, periodical technical inspections, and global technical regulations for wheeled vehicles. The World Forum and its six subsidiary Working Parties, on pollution and energy, general safety provisions, brakes and running gear, lighting and light-signalling, noise, and passive safety, are presently accelerating work to develop common global methodologies, test cycles and measurement methods for light vehicles, including CO_2 emissions. Most motor vehicle manufacturing countries, including such developing countries as Brazil, China, India, Malaysia, Mexico, South Africa and Thailand, actively participate in meetings of the Forum, which has a significant potential to contribute to a greening of the transport sector.

79. Voluntary programmes and measures to offset the carbon generated from transport activities by purchasing emission reduction units could effectively complement the avoid-shift-improve strategy towards sustainable transport. Private voluntary purchases of carbon credits can provide financing or co-financing for environmental conservation and greenhouse gas reduction projects, including in developing countries. Some 30 airline companies, many tour operators and a growing number of hotel chains offer carbon-neutral travel services. Efforts to promote sustainable tourism should in future routinely include carbon offsets.

80. Extrabudgetary support provided by donor countries has also enabled the United Nations to organize a number of conferences in a low-carbon or carbon-neutral manner, in particular conferences serviced by the secretariat of the United Nations Framework Convention on Climate Change and UNEP. The Commission may wish to consider a decision requesting the secretariat to arrange, whenever possible, for travel-related carbon emission offsets with regard to its future sessions.

IV. The way forward

81. Addressing the growing transport challenges is increasingly urgent. Transport infrastructure development often requires long lead times, visionary decision-making and thorough and integrated planning, as well as significant investment. At the same time, transport infrastructure is very durable and can provide services and

benefits for decades or even generations. Appropriate and effective policies and measures can facilitate and enhance transport and mobility for poverty eradication, a greener economy and a more sustainable future for all.

82. Essential economic, social and environmental considerations should always be systematically integrated into transport planning and decision-making, taking into account the three pillars of sustainable development. National and international policymaking and decision-making on transport should comply with and further the fundamental principles of sustainable development enshrined in the Rio Declaration on Environment and Development. Efforts to enhance sustainable transport and mobility should contribute to the implementation of the 10-year framework of programmes on sustainable consumption and production patterns.

83. Geographic disadvantages faced by many least developed countries, landlocked developing countries and small island developing States that constrain their participation in international trade and sustainable development owing to comparatively high transport costs, resulting from long distances, complicated logistics and small trade volumes, should be acknowledged in the relevant trade negotiations and technical cooperation agreements.

84. The challenges and opportunities differ significantly among countries, regions and cities. Therefore, there is also no feasible one-size-fits-all policy approach to solving transport challenges. However, accelerating progress towards a more sustainable transport future is both necessary and possible. To that end, the Commission may wish to consider developing an array of recommended policy options and practical measures for sustainable transport, including the following suggested elements and actions:

(a) Ensure access to adequate and affordable transport services in rural areas by providing the necessary transport infrastructure, including all-weather roads, in order to enhance achievement of the Millennium Development Goals;

(b) Significantly improve and increase public transport options in congested urban areas and city centres, including bus rapid transit, as well as metro and light rail systems, which should be safe, clean, efficient, affordable and environmentally friendly;

(c) Encourage the avoidance or reduction of unnecessary transport and travel;

(d) Facilitate walking and non-motorized transport in urban centres through appropriate planning and infrastructure;

(e) Accelerate a modal shift towards more economical, affordable and energy efficient modes of transport, including greater use of railways and inland waterways;

(f) Reduce local air pollution from the transport sector by improving fuel quality, vehicle emission standards and consumer information, and the modernization of taxi, truck, bus and other commercial fleets, as well as promoting non-motorized means of transport;

(g) Improve efficiency in fuel use by promoting lighter vehicle weight, aerodynamic designs, fuel-efficient tires, renewable energy and engine efficiency improvement;

(h) With a sense of urgency, significantly increase financial support and public and private investment from national and international sources for transport systems in developing countries, in particular in least developed countries, landlocked developing countries and small island developing States;

(i) Address the specific needs of women, young people, the elderly and the disabled, including safety and security, when designing transport systems;

(j) Enhance transport and road safety through active participation and contribution to the Decade of Action for Road Safety (2011-2020);

(k) Strengthen transport infrastructure and services by enhancing transport data collection and analysis and modern information technologies;

(l) Provide greater incentives for innovation, research and deployment of advanced transport technologies to achieve a greener, more energy and resource efficient economy and a sustainable low-carbon future;

(m) Facilitate international collaborative research, sharing of experience, capacity-building and technology transfer to make transport systems in developing countries more sustainable;

(n) Encourage voluntary initiatives and programmes to offset greenhouse gas emissions from transport to reduce its net environmental impacts.

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Policy options and actions for expediting progress in implementation: chemicals

Report of the Secretary-General

Summary

Ensuring the sound management of chemicals is an important element of achieving the Millennium Development Goals. The global production of, trade in and use of chemicals are increasing, placing increasing chemicals management demands on developing countries. The approach to chemicals management needs to be much better informed by a life cycle and sustainable development perspective that takes into account the multiple social, economic and environmental dimensions of the impacts of chemicals on human well-being. The focus of future policy options with respect to chemicals management should be on mainstreaming sound management into national development planning processes based on the Millennium Development Goals; strengthening regulations and legislation to improve chemical safety and to prevent and reduce risks; enhancing the accessibility and sharing of information; promoting alternatives to toxic chemicals; strengthening the means of implementation, including the mobilization of financial resources at all levels from both the public and private sectors; fostering partnerships among all stakeholders; and strengthening the international policy and legal framework and the enabling environment for achieving the goal of sound chemicals management.

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I. Introduction

1. At its eighteenth session, the review session of the fourth implementation cycle, 2010-2011, the Commission on Sustainable Development conducted an evaluation of progress achieved on the thematic issue of chemicals, as described in Agenda 21, the Programme for the Further Implementation of Agenda 21 and the Johannesburg Plan of Implementation.[1] The Commission also identified constraints and obstacles, as well as new challenges and opportunities, with regard to implementation in the thematic area of chemicals.

2. At its nineteenth session, the policy session of its current implementation cycle, the Commission will make decisions on policy options and practical measures to expedite implementation in the thematic area of chemicals. The session will be preceded by an Intergovernmental Preparatory Meeting, at which a draft negotiating document will be prepared for consideration by the Commission.

3. The present report is a contribution to the discussion to be held at the Intergovernmental Preparatory Meeting on policy options and practical actions to expedite progress on the sound management of chemicals. It responds to the challenges and obstacles highlighted in the report of the Commission on its eighteenth session (E/2010/29-E/CN.17/2010/15). The report was jointly prepared by the Department of Economic and Social Affairs and the United Nations Environment Programme (UNEP). It benefited from inputs provided by Governments, major groups and entities of the United Nations system, in particular the Strategic Approach to International Chemicals Management, the Inter-Organization Programme for the Sound Management of Chemicals,[2] the Stockholm Convention on Persistent Organic Pollutants, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, and the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal.

4. Ensuring sound chemicals management is an important element of achieving the Millennium Development Goals, including the Goal on poverty eradication, given the critical linkages between chemical production and use and the major sectors of developing economies, including agriculture, health care, energy and industry. The main message of the eighteenth session of the Commission on Sustainable Development was that significant but insufficient progress has been made in sound chemicals management at all levels. Serious incidents still occur, and chemicals still have negative impacts on both human health and the environment. Much remains to be done to achieve the World Summit on Sustainable Development 2020 goal on sound chemicals management.

5. The global production of, trade in and use of chemicals are increasing, with growth placing an increasing chemicals management burden on developing countries. As a result, significant changes are needed in the way in which societies

[1] See E/2010/29-E/CN.17/2010/15.

[2] The Inter-Organization Programme for the Sound Management of Chemicals brings together nine intergovernmental organizations actively involved in chemical safety: the Food and Agriculture Organization of the United Nations, the International Labour Organization, the United Nations Development Programme, UNEP, the United Nations Industrial Development Organization, the United Nations Institute for Training and Research, the World Health Organization, the World Bank and the Organization for Economic Cooperation and Development.

manage chemicals. Owing to the very nature of chemicals, future action must be approached from a sustainable development perspective.

6. Making changes to unsustainable patterns of production and consumption was considered in the Johannesburg Plan of Implementation, inter alia, as a cross-cutting and overarching objective of and an essential requirement for sustainable development. From the perspective of a life cycle approach, there are strong intersections between sound chemicals management and sustainable consumption and production patterns, including in such areas of action as the mainstreaming of practices aimed at corporate social and environmental responsibility; responsible advertising; marketing and consumer information tools, including labelling and certification; and efforts to scale up the work of consumer groups.

II. Policies for the sound management of chemicals

A. Governance

7. The importance of the sound management of chemicals for sustainable development is not sufficiently recognized by countries. As a result, chemicals management is not sufficiently integrated into national development strategies and plans. In many developing countries, activities for sound chemicals management are not a priority in development policies and are therefore underfunded. A similar situation is found in the development assistance policies of donor countries.

8. Chemicals management is a cross-sectoral issue that involves a number of Ministries in national Governments, together with a wide range of stakeholders. It remains a challenge to foster cooperation among various actors at both the national and international levels to ensure coherence, consistence and resource efficiency.

9. In many countries, the governance structure comprising national legal and institutional infrastructures for chemicals management is fragmented or incomplete, with inconsistent involvement by the local authorities. There is a lack of national coordinating frameworks engaging relevant stakeholders in chemicals management, including the implementation of international agreements and processes.

10. Another challenge is the continued lack of implementation of the Rio principles concerning sustainable development in the area of chemicals management. In the global effort to phase out hazardous chemicals, developing countries need more support from the international community in reshaping their economies towards sustainable development.

11. If they are to be fully effective, policy options and measures on chemicals management should address the full policy chain of decision-making, from identifying problems by assessing their root causes to proposing a coherent package of solutions. This will require a comprehensive regulatory and institutional framework, rather than only technology-oriented measures. The policy options regarding governance for sound chemicals management should include:

(a) Making sound chemicals management a priority in the broad context of development and environment strategies. If the awareness of decision makers is to be raised concerning the importance of chemicals management for sustainable development, more guidance needs to be made available on how to link sound

chemicals management to health and poverty alleviation, how to measure and value linkages and impacts, how to conduct assessments in a systematic manner, how to integrate such assessments into sectoral development plans and poverty reduction strategies, and how to address specific problems with strong linkages to development, including malaria control and the application of certain pesticides;

(b) Establishing or strengthening national coordinating frameworks engaging all relevant agencies and stakeholders in sound chemicals management, including the implementation of international agreements and processes, through a cross-sectoral, participatory and partnership-based set of interventions to promote the proactive management of harmful substances and hazardous waste, and to avoid potential problems rather than just respond to negative impacts once they have occurred;

(c) Evaluating and strengthening legal and institutional infrastructures at the national level to ensure a coherent and efficient administrative system. In particular, there is a need to focus on the enforcement of laws and regulations;

(d) Strengthening the institutional capacity of national Governments to develop legislative and regulatory systems for the environmentally sound management of hazardous chemicals, including effective frameworks for chemical accident prevention and preparedness;

(e) Linking the health-care and environmental sectors to address chemical safety and risk prevention and reduction, and utilizing the offices of the World Health Organization (WHO) to strengthen coordination at the national and regional levels;

(f) Implementing the Rio principles including common but differentiated responsibility, the precautionary approach, the "polluter pays" principle and the internalization of environmental costs, and developing economic instruments to promote the sound management of chemicals throughout their life cycle.

Key components of a governance framework for sound chemicals management

- Constitutional provision (health, quality of life, the environment, sustainable development)
- Enabling policy and legislative framework
- Mechanism for national coordination
- National plans and priorities
- Participation by stakeholders, including women, indigenous communities, workers and other vulnerable groups
- National infrastructure and governmental institutional capacity for risk assessment and management
- Basic information for risk management, to inform decision-making and for tracking progress, such as:
  - Information on chemicals imported, manufactured, formulated, in transit or traded

– Clinical, epidemiological and environmental data

– Toxicity, fate, distribution and exposure pathways

- National monitoring strategy to support assessment and basic information for decision-making and the monitoring of human populations, food (including animal feeds) and the environment (including air, water, soil, sediment, flora and fauna)
- Risk communication strategies for awareness-raising and outreach, and education to support risk prevention and reduction (accessible, timely and appropriate information, including that applicable to vulnerable groups)
- Support for research
- Financial resources

Source: *UNDP Technical Guide for Integrating the Sound Management of Chemicals in MDG-Based Policies & Plans*, 2009.

B. Information-sharing

12. Information exchange and effective communication throughout the life cycle of chemicals are key to enabling users to avoid exposure to hazardous chemicals and to managing risks to users and the environment. Progress has been made in this area: some 50 countries either have or are developing a national or regional pollutant release and transfer register system;[3] the legal instruments for implementing the Globally Harmonized System of Classification and Labelling of Chemicals have entered into force in many countries; and the prior informed consent procedure is being implemented through the Rotterdam Convention. Chemical information networks at the international level have been established by relevant agencies and under multilateral conventions. These include the clearing house being developed and managed as part of the Strategic Approach to International Chemicals Management; the clearing house under the Basel, Rotterdam and Stockholm Conventions; the International Chemical Safety Cards, produced and updated by WHO and the International Labour Organization (ILO); and the Global Portal to Information on Chemical Substances, hosted by the Organization for Economic Cooperation and Development (OECD).

13. Although further information about chemicals has become available and more easily accessible since the holding of the World Summit on Sustainable Development, there is still significant room for improvement. At the eighteenth session of the Commission, it was highlighted in particular that the available information and data on chemical safety and toxicity, especially in national and local languages, is still insufficient. Furthermore, there is insufficient sharing of information about alternatives to toxic chemicals, which is especially important to developing countries and countries with economies in transition. In addition,

[3] See 2009 OECD survey regarding the implementation of Economic Commission for Europe (ECE) Recommendation C(96)41/Final, on pollutant release and transfer registers.

countries have insufficient capacity to interpret and utilize information on chemical safety and toxicity.

14. With respect to the ongoing work of implementing pollutant release and transfer registers, many countries pointed out that a lack of institutional capacity and deficiencies in terms of laboratory infrastructure are major barriers to the implementation of this instrument.

15. Another challenge identified at the eighteenth session of the Commission was the fact that there is insufficient information about the chemicals contained in products. The increasing presence of toxic chemicals in products poses risks to human health and the environment when the products are used and when they are recycled or become wastes. Products containing harmful chemicals have also become a global problem as a result of international trade; examples include children's toys, textiles, jewellery, electronics and furniture. Vulnerable groups such as children and pregnant women are at particular risk for exposure to a variety of harmful substances contained in products. Yet there is no global system for providing information to consumers and others about chemicals contained in products.

16. The second session of the International Conference on Chemicals Management, held in May 2009, identified chemicals in products as an emerging issue. In its resolution II/4, the Conference decided to implement a project to address the improvement of information relating to chemicals in products and encouraged stakeholders to provide support to the project, both in substantive and in resource terms.

17. The fourth meeting of the Conference of the Parties to the Stockholm Convention, held in May 2009, added nine new chemicals for elimination or restriction under the Convention, including industrial chemicals widely used in products and other articles.

18. If there is to be effective and efficient generation and sharing of information, cooperative action is needed at all levels to:

(a) Further implement the Globally Harmonized System of Classification and Labelling of Chemicals, establish national pollutant release and transfer registers, participate in and implement the prior informed consent procedure, make full use of existing international and regional information networks, and provide related training and technical assistance to developing countries and countries with economies in transition;

(b) Improve the knowledge, training, education and awareness of all national stakeholders, including experts, legislators, politicians, policymakers, farmers, workers, producing and manufacturing companies, and public and national organizations, with regard to the sound management of chemicals along the value chain;

(c) Implement the principle of "no data, no market" and integrate the acquisition, management and dissemination of information related to hazardous substances into the process of developing and marketing chemicals. Universal access to such information and knowledge is essential for the development of prevention and protection tools. This includes assessing the hazardous properties of

chemicals and strengthening screening and evaluation systems for new chemicals entering the market;

(d) Strengthen the community's right to acquire knowledge through product labels, environmental reports, environmental impact assessments, eco-audits, emission inventories and similar instruments. Data relevant to the health and environmental impacts of chemicals should be made available to the public;

(e) Disseminate information about the chemical content of products and the resulting impacts on human health. Further initiatives are needed to promote the responsibility of producers to provide clear and accessible information to the public on chemicals contained in products;

(f) Promote universal access to reliable information regarding hazardous substances through the adoption of a global system for communicating information about risks and hazards;

(g) Develop global networks to facilitate the sharing of good practices, methodologies, interventions, approaches and results of research to improve the management of hazardous substances;

(h) Strengthen the regional information exchange networks supported by UNEP;

(i) Strengthen the sharing of information between developed and developing countries, including research findings regarding chemical toxicity;

(j) Strengthen the exchange of information about safe and accessible alternatives to toxic chemicals.

C. Chemical safety and risk prevention and reduction

19. Chemical safety and risk prevention and reduction are crucial for reaping the benefits of chemicals without suffering their negative effects in terms of the environment and human health.

20. The main sources of chronic chemical pollution include the agricultural use of pesticides, releases resulting from energy generation and industrial activities, and obsolete stocks of outdated chemicals.

21. Vulnerable groups in developing countries, including children, women, indigenous people, the poor and workers, suffer disproportionate impacts as a result of high levels of chemical exposure from, inter alia, water, food, dwelling location and occupational circumstances, as well as lack of understanding with regard to the need to protect themselves and others from chemical risks.

22. The consumption of chemicals in developing countries is growing at a higher rate than that in developed countries and could account for a third of global consumption by 2020. Without sound chemicals management, this trend will lead to increased pollution and other negative effects produced by chemicals. Moreover, the risk posed by a chemical in one country may affect other countries, because of the potential that it will spread through the environment in the air, in water and in migratory species.

23. Many developing countries lack the basic legal, institutional and human capacities and knowledge needed for adequate chemical risk assessment and management. In many developing countries, increasing agricultural production is a top priority in development plans, which often leads to the increased use of pesticides. However, those development plans rarely contain provisions for the effective assessment and management of pesticides or alternative methods such as integrated pest management and organic production. Furthermore, in many cases, pesticides are imported illegally and repackaged without any labelling on proper handling, creating exposure risks for users.

24. In developing countries, a large proportion of the industrial activities involving chemicals are carried out by national companies and/or small and medium-sized enterprises. These companies and enterprises very often lack human and technical capacity to adopt the tools and methodologies for ensuring the protection of workers and the safety of processes and products used in larger-scale industries in developed countries.

25. At present, there is a lack of guidance with respect to the industrial uses of chemicals. Given the present trends, with increased production and use of chemicals in developing countries, the need for such guidance is becoming urgent. Countries need internationally agreed guidance and standards that are coherent, complementary, consistent and targeted to specific sectors.

26. It should be noted that small island developing States are increasingly vulnerable to the transboundary movement of hazardous wastes and chemicals that have land-based and ship-borne sources, primarily outside their exclusive economic zones. Given the ecological fragility of small island developing States, their high dependence on coastal and marine resources and their low environmental and socio-economic carrying capacities, the magnitude of the risks posed by such chemicals is greater for them than for others.

27. There are numerous tools for risk assessment and management. However, those tools have been created by the developed countries for their particular circumstances. Therefore, there is a need to adapt and develop assessment tools and methodologies that fit the national environmental, ecological and socio-economic conditions relevant to chemicals management in developing countries and countries with economies in transition.

28. The reliance of countries on hazardous chemicals has demonstrated the need to develop safe alternatives that can replace harmful chemicals, or alternative approaches that reduce the use and release of chemicals.

29. Effective policies and measures for chemical safety and risk prevention and reduction depend on a number of activities, such as:

(a) Increasing awareness about the importance of chemical safety among decision makers at the national and local levels, as well as the private sector, civil society and chemical users. This is a prerequisite for the placing of national priority on the development of measures necessary to prevent and reduce the negative effects of chemicals on the environment and human health;

(b) Establishing a functioning regulatory system that sets out rules for registration, evaluation and restriction in the use of chemicals. The system needs to cover the whole life cycle of chemicals, including production, transport, use,

recycling and disposal. Regulation of the marketing of chemicals is critical. The regulatory framework should incorporate the implementation and enforcement of international legally binding instruments, such as the ILO Conventions and multilateral environmental agreements on chemicals and waste, as well as voluntary standards and agreements such as the International Code of Conduct on the Distribution and Use of Pesticides;

(c) Developing legislation on liabilities and compensation for environmental damage as a supplement to the traditional legislative approach to chemicals management. The use of innovative market-based instruments could be considered, given their ability to help reduce the use of harmful chemicals;

(d) Strengthening national human capacity for the technical assessment and management of chemicals throughout their life cycle. This requires extensive training of staff, including enforcement officers, inspectors and customs officials;

(e) Developing the laboratory capacity necessary to monitor the presence and the effects of chemicals in the environment. This could be done through regional and subregional cooperation in order to decrease demands on individual national budgets;

(f) Intensifying activities to address existing stocks of obsolete chemicals that are polluting the environment. Countries need to design proactive strategies to prevent large stocks of chemicals from being accumulated in future when they are banned or taken off the market;

(g) Fostering industrial and academic research on safer alternative products and technologies to replace the use of hazardous chemicals and promote more sustainable approaches, such as integrated pest management and organic farming methods;

(h) Assessing existing methods at the international level for chemical risk assessment and management and adapting them to the needs of developing countries and countries with economies in transition. Here, the development of international codes and standards for industrial chemicals similar to the International Code of Conduct on the Distribution and Use of Pesticides should be considered. These initiatives could build on existing materials and approaches such as the Globally Harmonized System of Classification and Labelling of Chemicals and pollutant release and transfer registers, and could take into account national and regional experiences. Organizations participating in the Inter-Organization Programme for the Sound Management of Chemicals should consider working together to provide countries with such coherent guidance and standards for industrial chemicals.

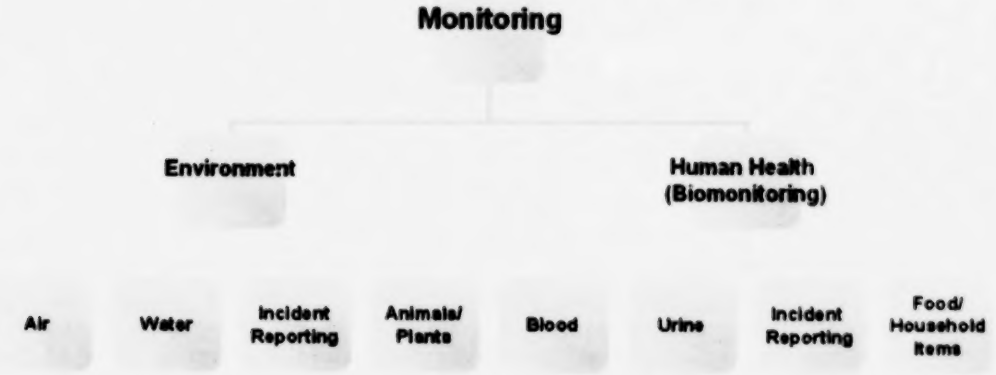
D. Monitoring

30. Given the huge quantities and varied characteristics of chemicals being produced, traded and used, it is not practicable to monitor all chemicals in the same way. The chemicals of most concern are those that are hazardous, that persist in the environment and that travel long distances in the environment from where they are released.

31. Most current monitoring programmes fall into two categories: those that monitor environmental impacts and those that monitor human health impacts

(biomonitoring). Environmental monitoring indicators include soil, air, water, incident reporting, animals and plants. Biomonitoring indicators include human milk, blood, urine, incident reporting, food and other household products. For example, a monitoring programme can consist of routine sample checks to determine the levels of heavy metals in raw materials such as meats.

Figure I
Indicators used to monitor chemicals



32. Information on monitoring methods can be found within forums and in scientific literature, including reports from WHO and UNEP. Most environmental monitoring information is accumulated through the International Society of Exposure Science and its publication, *Journal of Exposure Science and Environmental Epidemiology*. There is no centralized database of information on biomonitoring methods, but information and data on that topic are scattered among various sources. WHO, UNEP and other chemicals-related agencies and multilateral conventions, such as the Stockholm Convention, are involved in the monitoring of chemicals. The World Bank provides financial and human resource support for relevant programmes. Stakeholders such as non-governmental organizations are also involved in biomonitoring. For example, the European Centre for Ecotoxicology and Toxicology of Chemicals, a non-profit scientific association, provides guidance on the interpretation of biomonitoring data.

33. At the national level, there are major discrepancies between developed and developing countries in terms of the implementation of monitoring programmes. Equipped with allocated resources and analytical capacity, developed countries have undertaken extensive monitoring of chemical pollutants. For example, the European Monitoring and Evaluation Programme monitors and reports monthly mean concentrations of persistent organic pollutants in order to assess transboundary air pollution. The presence of chemical pollution has often been noted in developing countries, but effective monitoring programmes that generate meaningful data are often lacking. Moreover, there are differences between academic networks and Government networks for environmental monitoring; these could be better linked.

34. The overall challenges facing monitoring efforts include the following realities: monitoring the general effects of chemicals on human health and the environment is extremely difficult, as those effects might be altered by other effects;

there is a lack of monitoring of the potential risks posed by chemicals throughout their life cycle; there are insufficient monitoring data on the chemical contamination of environmental media and on human exposure; and there is a need to expand the current list of indicators.

35. Further efforts should be made to develop monitoring programmes that specifically address each point in the chemical life cycle. The policy options for the strengthening of monitoring efforts should include:

(a) Developing monitoring indicators further. This requires greater investment in technological advancements in terms of monitoring techniques and detection mechanisms, to make the monitoring of chemicals more accessible;

(b) Making better use of existing data and data extrapolation in the development of best practices, and increasing access to information gathered through monitoring. There is a need to develop a centralized database of information relating to each category of chemicals and best practices in monitoring them. There is also a need to bring together public health and environment experts and activities within the framework of a comprehensive integrated surveillance and monitoring system;

(c) Expanding monitoring programmes in a coordinated manner, and sustaining existing programmes with adequate resources. For example, the Global Monitoring Plan under the Stockholm Convention aimed at assessing levels of persistent organic pollutants needs to be sustained so that progress can continue to be evaluated;

(d) Strengthening regional or bilateral cooperative activities, as chemicals can travel long distances. Fruitful cooperation is exemplified by the Arctic Monitoring and Assessment Programme;[4]

(e) Increasing and sustaining analytical capacity in developing countries. Human resources can be strengthened through better communication among existing programmes in developed countries; centres and networks of expertise should be developed or strengthened and training programmes devised to improve expertise in developing countries. Programmes such as those involving intercalibration, aimed at enhancing quality assurance and quality control as well as facilitating the global comparison of data, should be promoted;

(f) Prioritizing specific chemicals to be monitored by comparing the effects of various hazardous chemicals.

E. Emerging issues

36. In addition to the traditional hazardous chemicals, a number of emerging issues are attracting great attention. In May 2009, the second session of the International Conference on Chemicals Management identified nanotechnology, electronic waste (e-waste), chemicals contained in products and lead contained in paint as emerging policy issues. Those issues are not sufficiently recognized or

[4] The Programme involves Canada, Denmark, Iceland, Sweden, Norway, Finland, the Russian Federation and the United States of America (Alaska).

addressed, and they pose existing or potential risks to human health and the environment.

37. At the eighteenth session of the Commission, particular concern was expressed about nanotechnology. Participants pointed out that too little is known about the potential risks of nanomaterials, which are already used in a wide range of domestic and industrial products and foods. The Royal Society of the United Kingdom of Great Britain and Northern Ireland recommended that, given the emerging evidence of serious nanotoxicity risks, nanoparticles should be treated as new chemicals and should be subjected to new safety assessments prior to their inclusion in consumer products.

38. E-waste is another major concern, particularly in developing countries. Although some work to address this emerging issue has been undertaken by various international organizations, in particular under the Basel Convention, more needs to be done, especially to minimize the use of hazardous chemicals in e-products.

39. Various governmental agencies are developing new testing methods to assess emerging health and environmental risks posed by chemicals. However, this work is being carried out mainly in the developed countries. At the eighteenth session of the Commission, there was a strong call for the strengthening of cooperative action, and this should involve developing countries. There was also an emphasis on the adoption of a precautionary approach in addressing emerging issues.

40. At its second session, the International Conference on Chemicals Management made some progress in this area. In its resolution II/4, the Conference endorsed the establishment of a global partnership on lead in paint and decided to implement a project to address the improvement of information relating to chemicals in products. With a view to the further consideration of issues in relation to electrical and electronic products, a workshop is to be convened for which the Conference invited stakeholders to provide expertise and resources. With respect to nanotechnology, the Conference, in the resolution, encouraged stakeholders to provide assistance to developing countries and countries with economies in transition to enhance the required capacity, invited stakeholders to work together on research and requested them to facilitate access to and share information. In addition, the Conference agreed to establish a contact group to discuss the institutional arrangements for its intersessional period, including those needed for future work on emerging policy issues.

41. The emerging issues merit concerted actions at all levels, including:

(a) Strengthening research and risk assessment with respect to the emerging issues in order to reduce the risks posed by chemicals, including new chemicals covered by multilateral environmental agreements, as well as the risks posed by e-waste and nanotechnologies;

(b) Utilizing the International Conference on Chemicals Management, the governing body of the Strategic Approach to International Chemicals Management, to focus attention and call for appropriate action on emerging issues as they arise and to forge a consensus on priorities for cooperative action;

(c) Supporting existing programmes and projects on emerging issues, such as the contact group of the Strategic Approach on emerging policy issues; the Strategic Approach workshop on electrical and electronic products to be held by the

secretariats of the Basel and Stockholm Conventions and the United Nations Industrial Development Organization; the partnership between UNITAR and OECD aimed at addressing awareness-raising and the development of capacities in developing countries and countries with economies in transition with regard to nanotechnology and manufactured nanomaterials; and the work done by OECD and the Inter-Organization Programme for the Sound Management of Chemicals on the management of perfluorinated chemicals and the transition to safer alternatives;

(d) Strengthening related information-sharing between countries.

F. Partnerships

42. The environmentally sound management of chemicals is reliant on the participation of all stakeholders. Decisions made with the involvement of relevant stakeholders, including non-governmental organizations, civil society and the private sector, are much more likely to be successfully put into practice. These actors provide not only access to a wide range of expertise, but also pertinent local information with which to assess policy options. They may carry out monitoring and data-collection efforts as well as community outreach, public education and awareness-raising activities.

43. However, the growing acknowledgement of the important role played by these stakeholders in chemicals policy and management has not been matched with efforts to permit their effective involvement in policy development processes. In some countries, there is a lack of Government support for public participation in the decision-making process, and resources provided for stakeholder-related activities are minimal or difficult to gain access to.

44. There is a need for strengthened partnerships between national Governments, the private sector, research institutions and civil society for the sound management of chemicals, as well as a need for greater financial, technical and capacity support for public-interest non-governmental organizations and civil society organizations in order to permit and facilitate their responsible and active participation in policy development processes. Here, future actions should include:

(a) Strengthening cooperation with civil society, academia and scientific societies and other stakeholders and encouraging their contributions to sound chemicals management;

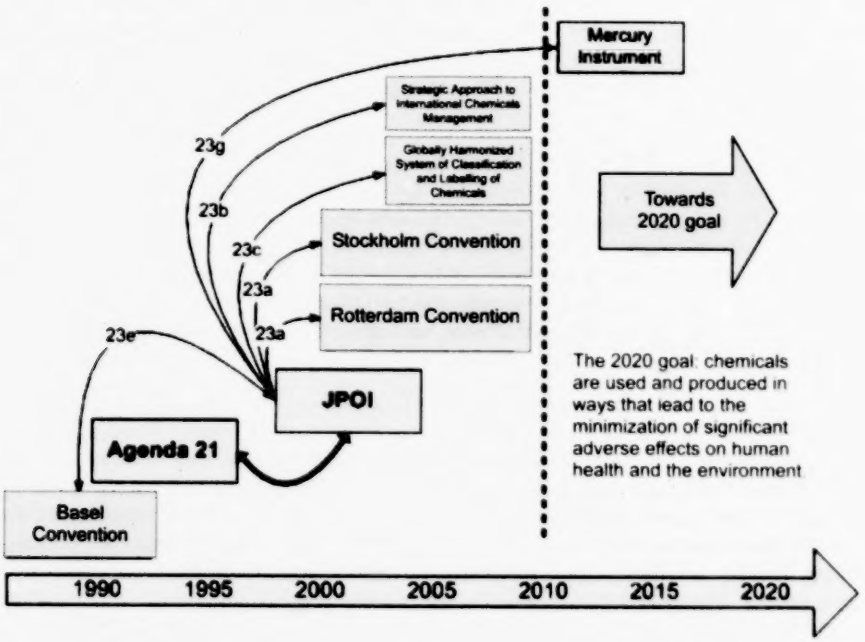
(b) Fostering public-private partnerships in order to strengthen the capacities of national industry and small and medium-sized enterprises for the safe and responsible use and handling of chemicals, including hazardous chemicals;

(c) Establishing partnerships to assess and communicate information about chemical risks and hazards, drawing on examples such as the Responsible Care Global Charter and the Global Product Strategy;

(d) Promoting the role of industry in information-sharing and implementing the precautionary approach to chemical safety; strengthening responsible advertising and marketing; and implementing the principle of "no data, no market" and mainstream practices aimed at corporate social and environmental responsibility in the chemical industry.

III. Strengthening the implementation framework and the enabling environment

Figure II
A clear vision: towards the 2020 goal



A. International policy framework: Strategic Approach to International Chemicals Management

45. The initial commitment to the implementation of the Strategic Approach to International Chemicals Management, as evidenced in high-level endorsements, the nomination of national focal points, preliminary progress reports and the extensive portfolio of Quick Start Programme projects, has been encouraging. Challenges to the full implementation of the Strategic Approach, which offers a non-legally binding international policy framework, include a lack of the resources needed for capacity-building, institutional strengthening and other activities, uneven engagement across key sectors, and the difficulty of monitoring progress on a continuous basis.

46. The financing of the secretariat of the Strategic Approach and the trust fund for its Quick Start Programme have been based on voluntary contributions, which are very sensitive to the priorities of donor countries and might change over time. At present, the major contributions to the Programme have been limited to a few donor countries or regional economic cooperation organizations. During the lifetime of the Strategic Approach, it will be a challenge to finance the necessary activities.

47. The Global Environment Facility has opened up a funding window for activities related to the Strategic Approach. However, this covers only a very small fraction of what is needed for the full implementation of the Approach.

48. The International Conference on Chemicals Management decided, upon the adoption of the Strategic Approach, that the trust fund for the Quick Start Programme would expire by 2013, with the last disbursement of funds to be made in 2012. However, the need for funds to support the sound management of chemicals under the Strategic Approach will not end at that time. A replacement for the Programme needs to be found, with a longer-term approach that is financially supported.

49. Recognizing chemicals as a cross-sectoral issue, the Strategic Approach to International Chemicals Management represents an attempt to move beyond the environment and to include all sectors relevant to sound chemicals management. This has been achieved only to a small degree at the international level, as the governing body of the Strategic Approach, the International Conference on Chemicals Management, is still dominated by ministries of the environment and health. Most of the other relevant sectors, including the development sector, are not represented at the Conference.

50. Existing mechanisms such as the Inter-Organization Programme for the Sound Management of Chemicals have proved effective in maintaining coordination in Strategic Approach-related activities at the international level and, increasingly, in partnerships boasting implementation and impact. However, the engagement of regional organizations and financial institutions has been uneven and insufficient. At the national level, the inter-ministerial committees encouraged in the Overarching Policy Strategy of the Strategic Approach have been established in some countries, but intersectoral coordination appears to be lacking in many cases.

51. As regards future policy options and measures for ensuring an enabling international environment for the sound management of chemicals, there is a continuing need to:

(a) Strengthen the international policy framework for chemicals, including through the full and effective implementation of the Strategic Approach to International Chemicals Management. The third session of the International Conference on Chemicals Management, to be held in 2012, will be the next major opportunity to take stock of Strategic Approach implementation and to renew momentum behind it, as well as to consider additional emerging policy issues;

(b) Further enhance coordination, coherence and synergies among existing institutions and processes relating to chemicals, including the coordination between the Commission and other bodies and agencies. The outcomes of the discussions of the Commission need to be transmitted to other forums dealing with chemicals;

(c) Consider and devote increased attention to the possible need for international structures to evolve or to be supplemented beyond the lifetime of the Strategic Approach, after 2020. This might include the possibility of developing a global structure for the implementation of policy actions regarding chemicals of concern and promoting a proactive approach to chemicals management. The discussion of such matters will likely figure prominently at the fourth and fifth sessions of the International Conference on Chemicals Management, to be held in 2015 and 2020, respectively. In the meantime, the nineteenth session of the

Commission; the international environmental governance process, including the meetings of the Governing Council of UNEP; and the United Nations Conference on Sustainable Development (Rio+20) may provide opportunities for initial debate.

B. International legal framework

52. Progress in the implementation of the legal agreements on chemicals and wastes, such as the Basel, Rotterdam and Stockholm Conventions, has been observed through a number of indicators, such as an increase in the number of ratifications, a good rate of transmission of national implementation plans under the Stockholm Convention, the number of new chemicals reviewed and listed under the Stockholm and Rotterdam Conventions, and import responses under the Rotterdam Convention.

53. A number of challenges continue to hamper the wider implementation of these international instruments at the national level. Difficulties faced by countries parties are related to the insufficient use of market-based mechanisms, inadequate legal and technical capacity, lack of access to affordable and safer technologies and alternatives, and, in particular, the need to prioritize and integrate chemicals strategies into national development plans.

54. The weakness of the regulatory infrastructure, in particular enforcement mechanisms for chemicals management in developing countries parties and parties with economies in transition, has been identified as among the major challenges to the implementation of the Conventions. In many of these countries, there is fragmented and inconsistent implementation of the legal framework which leads to a lack of cooperation and synergy among the legal agreements at the national level. In addition, access to adequate and sustainable financial resources remains one of the main barriers to the implementation and enforcement of the international legal instruments.

55. At the international level, the extraordinary meetings of the Conferences of the Parties to the Basel, Rotterdam and Stockholm Conventions on the synergies among the three Conventions, held in Bali in February 2010, recognized that the overarching goal of the Conventions is the protection of human health and the environment and the promotion of sustainable development, and that the objective of enhanced coordination and cooperation among the three Conventions will contribute to the achievement of that goal. The extraordinary meetings and the process of enhancing cooperation and coordination among the three Conventions provides an encouraging example for other parts of the global environmental agenda, demonstrating the fact that enhanced international environmental governance can take place within a cluster of related multilateral environmental agreements. Joint activities among the secretariats of the Conventions are being developed and implemented with the specific mandate to produce benefits for parties at the national level, which would enhance their ability to meet their obligations under the Conventions.

56. A general challenge for chemicals management and the related international legal framework is the limited number of chemicals covered by the international agreements. This is attributable to the fact that there must be an international consensus that chemicals have been proved to be unsafe and of global concern before they can be addressed at the international level. This in turn leads to long

negotiation periods between the establishment of the relevant scientific evidence and the taking of action, but is counterbalanced by the advantage of promoting strong information exchange and guidance with respect to the chemicals reviewed, including proven effects on human health and the environment, as well as potential alternatives to be introduced. The review process being carried out within the framework of the scientific committees related to the Conventions also encourages countries parties to take action on chemicals that have been carefully reviewed.

57. The delivery of timely and appropriate technical assistance and the transfer of technology are recognized as essential for the implementation of legal agreements at the national level on chemicals and wastes. Under a number of agreements, regional and subregional centres for capacity-building and technology transfer have been established and mandated to assist States parties in fulfilling their obligations under the Conventions. These centres offer assistance in a wide range of areas, such as research for the development and introduction of alternatives; laboratory capacity, including to assess risks posed by chemicals and to monitor levels of contamination; and the development of regulatory and enforcement schemes.

58. As regards future action towards an effective international legal framework for ensuring the sound management of chemicals, policy measures and actions should be taken to:

(a) Mobilize financial resources at all levels, both public and private, to support the ratification, implementation and enforcement of legal instruments for chemicals management and hazardous waste, especially the aforementioned Conventions;

(b) Integrate chemicals management and the implementation of the internationally legally binding instruments into national development plans in order to ensure bilateral and national funding for the implementation and enforcement of the Conventions, as well as catalyse initiatives and partnerships to enhance technical and financial assistance to developing countries, including support from industry;

(c) Foster cooperation and coordination among the three Conventions at the national level, and ensure national synergies in their implementation and enforcement. This could be achieved by revising the mandate of the national coordination mechanisms already established at the national level to include further collaboration among the ministries involved in the implementation of the Conventions and the overall chemicals agenda. In that regard, it would be important that the coordination mechanisms include the main economic and planning ministries in order to ensure their support for the implementation of the Conventions;

(d) Successfully implement the obligations pertaining to the chemicals newly listed in annexes A, B and C to the Stockholm Convention, including the nine chemicals added by the amendments that entered into force on 26 August 2010;

(e) Successfully ratify the Ban Amendment to the Basel Convention, which bans the export of hazardous wastes from annex VII countries (parties to the Basel Convention that are members of the European Union and OECD, as well as Liechtenstein) to non-annex VII countries (all other parties to the Convention) for final disposal and recycling;

(f) Successfully negotiate a globally legally binding instrument on mercury. At the beginning of 2009, the international community decided that, to complement

the existing legal instruments, a legally binding instrument on mercury would be developed. The goal is to develop such an instrument by 2013;

(g) Raise the awareness of the public and decision makers through initiatives such as the Green Customs Initiative and products free of persistent organic pollutants, and through international campaigns such as the Safe Planet Campaign.[5]

C. Means of implementation

59. The Strategic Approach to International Chemicals Management and the international legal agreements on chemicals and wastes recognized that the extent to which developing countries can make progress towards the sound management of chemicals and wastes, including to meet the 2020 goal of the World Summit on Sustainable Development, depends in part on the availability of financial resources provided by Governments and the private sector, as well as bilateral, multilateral and global agencies or donors. This issue was re-emphasized at the eighteenth session of the Commission, each meeting of the conferences of the parties to the chemicals and wastes Conventions and meetings of the International Conference on Chemicals Management.

60. The need for financial resources can clearly be seen in the projection of financial requirements, estimated at $9 billion,[6] for national implementation plans relating to the first 12 persistent organic pollutants included in the Stockholm Convention. These resource requirements, which far exceed the resources available for the Global Environment Facility, will need to be mobilized.

Stockholm Convention summary of full resource estimates for 68 parties in four regions

(Millions of United States dollars)

Region	*2004-2009*	*2010-2014*	*2015+*	*Regional totals*
Africa	836.85	729.11	502.08	2 068.04
Asia and the Pacific	2 088.64	3 430.40	676.80	6 195.84
Central and Eastern Europe	292.71	242.38	132.84	667.93
Latin America and the Caribbean	118.28	86.88	22.40	227.56
Period totals	**3 336.48**	**4 488.77**	**1 334.12**	**9 159.37**

Note: Reproduced from annex to UNEP/POPS/COP.4/27, "Assessment of funding needs for parties that are developing countries or countries with economies in transition to implement the Stockholm Convention for the period 2010-2014", p. 7.

[5] The United Nations Campaign for Responsibility on Hazardous Chemicals and Wastes (Safe Planet Campaign) is a global campaign led by UNEP and the Food and Agriculture Organization of the United Nations to ensure that the environment and human health are safe from toxic chemicals and wastes. More information can be found at http://www.facebook.com/safe.planet.

[6] This number does not take into account countries that have not yet ratified the Stockholm Convention or the persistent organic pollutants that have been added to it. Thus, while some numbers might be rough estimations, it is also true that not all the required data have been gathered.

61. At present, a disproportionately small portion of bilateral and multilateral funding is allocated for national efforts to ensure the sound management of chemicals, because such initiatives are rarely featured and mainstreamed as national priorities in development plans and national assistance strategies.

62. Owing to lack of funding, most developing countries do not have the technical and analytical capacities for the development, implementation and enforcement of chemicals management programmes. There is a lack of trained scientific, legal and administrative personnel, enforcement officers and customs officials. There is also a lack of the institutional structures, such as laboratories, necessary for the sound management of chemicals.

63. The means of implementation should be further strengthened in order to achieve the goal of sound chemicals management. Actions should include:

(a) Mobilizing financial resources at all levels, both public and private, to support the transition to the sound management of chemicals. Within the short- and midterm time horizons, specific proposals for new financing arrangements could include a multilateral fund for chemicals, such as that under the Montreal Protocol on Substances that Deplete the Ozone Layer, transforming the Quick Start Programme of the Strategic Approach to International Chemicals Management into a permanent funding arrangement during the lifetime of the Approach, as well as expanding the funding for the chemicals focal area of the Global Environment Facility. Over the long term, however, the sustainable funding of chemicals management must be provided through national funding. This implies both greater support for the mainstreaming of sound chemicals management into national development plans and strategies and the greater use of economic instruments to sustain national funding for chemicals-management-related policies and measures;

(b) Supporting the ongoing initiative[7] of the Executive Director of UNEP on a consultative process aimed at identifying financing options for the chemicals and wastes agenda;

(c) Strengthening regional and subregional centres for capacity-building and technology transfer established under the three Conventions;

(d) Fostering public-private, North-South and South-South partnerships to strengthen the capacities of national industry and small and medium-size enterprises for the safe and responsible use and handling of chemicals, including hazardous chemicals;

(e) Providing a coherent package of decision-making tools and guidance, along with a set of science-based economic arguments that make a convincing economic case for investing in the sound management of chemicals;

(f) Developing and transferring a technology of safe substitutes and developing capacity for the production of such substitutes, particularly in developing countries;

(g) Considering the establishment of a system to prevent the transfer of obsolete technologies to developing countries, and promoting the cooperative development of environmentally sound technologies;

[7] As adopted at the eleventh special session of the Governing Council/Global Ministerial Environment Forum, held from 24 to 26 February 2010 (decision SS.XI/8).

(h) Considering the establishment of an international mechanism, in collaboration with regional and subregional centres established under the Conventions, as well as regional offices of UNEP and the Food and Agriculture Organization of the United Nations (FAO), to support education and capacity-building for the sound management of chemicals aligned with the implementation of the Strategic Approach to International Chemicals Management and the three main Conventions on chemicals;

(i) Strengthening human and technical capacity for risk assessment, reduction and monitoring in both Government and public-interest organizations, and providing assistance to developing countries.

IV. The way forward

64. The projected growth in the production and use of chemicals, in particular in the developing world and in countries with economies in transition, is likely to result in greater negative effects on health and the environment if sound chemicals management is not put in place. The gap between policy formulation and practice needs to be closed at the international, regional and national levels.

65. Strong national infrastructures for the sound management of chemicals should be established. Countries need to mainstream the priorities of sound chemicals management into national development planning processes based on the Millennium Development Goals, and move forward in forming and strengthening their inter-ministerial committees with multi-stakeholder participation, appointing national focal points, and developing and implementing their national plans under the Strategic Approach to International Chemicals Management, the Rotterdam and Stockholm Conventions, and other chemicals-related instruments.

66. A life-cycle approach should be adopted, and the commitment to basic principles, such as the precautionary and "polluter pays" principles, "no data, no market", the public's right to know, and the progressive substitution of the most dangerous chemicals, should be strengthened.

67. There is also a need to seek and address interlinkages between chemicals and other environmental issues, such as climate change, biodiversity, land degradation and water resources, in order to reinforce the contribution made by global action aimed at sound chemicals management to the achievement of sustainable development.

68. Legislation requiring producers and importers to improve the safety of their products should be enhanced, together with the monitoring and enforcement of existing regulations. Information regarding chemicals contained in products should be improved.

69. The institutional capacity of national Governments to develop legislative and regulatory systems for the environmentally sound production and use of hazardous chemicals, including effective frameworks for the prevention of and preparedness for chemical accidents, should be strengthened.

70. Clear and concise indicators, including goals, targets and timelines for what countries want to achieve in terms of sound chemicals management, should be developed, with priorities spelled out clearly in national development plans.

71. Research into and the promotion of alternatives to toxic and persistent chemicals should be strengthened. Existing information concerning safe and accessible alternatives, such as guidance developed by the scientific committee related to the Stockholm Convention, should be widely disseminated to countries to assist them in developing and implementing their regulatory and enforcement frameworks.

72. Public health could be improved by emphasizing the need to fully engage the health sector in national, regional and international strategic approach forums and in national inter-ministerial processes. Strategies directed specifically at ensuring the health of women, children and workers should be developed.

73. Environmental and health sector managers should become more effective partners in the development planning process, including in the area of sound chemicals management, in terms of providing timely information and converting technical data into usable forms of information for decision makers.

74. The sound management of hazardous substances in the workplace is essential in reducing their impacts on the environment, workers and industry. Countries need to implement the main chemicals-related ILO Conventions, namely, the Chemicals Convention, 1990 (No. 170), and the Prevention of Major Industrial Accidents Convention, 1993 (No. 174).

75. With a view to enhancing the sharing and accessibility of information, the implementation of the Globally Harmonized System of Classification and Labelling of Chemicals by Member States remains a priority. The establishment of a global system for communicating information about risks and hazards is necessary. The flow of relevant information between developed and developing countries, including research findings on chemical toxicity, should be enhanced. The establishment of an international mechanism to support education and capacity-building aimed at sound chemicals management should be considered.

76. Chemical safety should become an important part of national policies. Highly hazardous pesticides should be addressed through the implementation of the International Code of Conduct on the Distribution and Use of Pesticides. A pesticide authorization system should be established at the national level. International codes and standards for industrial chemicals should be developed. Countries need to address existing stocks of obsolete chemicals while adopting proactive strategies to prevent the future development of stocks of such chemicals.

77. Increased cooperation between countries is needed to prevent the negative impacts of chemicals from being transferred from one region to another and to avoid a repetition of past mistakes. For that purpose, one option is to enhance the use of prior informed consent procedures between countries as provided for by the Rotterdam and Basel Conventions. The provision of technical assistance to developing countries and countries with economies in transition is a key. Countries should also build and strengthen their capacity to deal with poisonings and chemical incidents.

78. The link among chemical safety, risk prevention and reduction and sustainable development should be fully reflected in the funding decisions of bilateral development assistance cooperation agencies. Donors need to recognize and encourage chemical safety objectives as important elements of development cooperation. Meanwhile, countries need to fully integrate the objectives of sound

chemicals management into national plans and corresponding budgets. Expanding the funding for the chemicals focal area of the Global Environment Facility should be considered. A permanent and sustainable financial mechanism should be established to replace the Quick Start Programme trust fund of the Strategic Approach to International Chemicals Management.

79. The existing international instruments and programmes, including the key chemicals Conventions such as the ILO Chemicals Convention and the Stockholm, Rotterdam and Basel Conventions, should be fully implemented. Coherence and synergies among these instruments should be enhanced at all levels, including through coordination among focal points for the Conventions and the Strategic Approach to International Chemicals Management and through greater use of the regional centres established under the Conventions.

80. Actions on emerging issues, such as e-waste and nanotechnologies, should be strengthened, including through further cooperation on research, risk assessment and information-sharing between countries.

81. The international policy and legal framework for chemicals management should be further strengthened, including through the full and effective implementation of the Strategic Approach to International Chemicals Management, the successful negotiation of a globally legally binding instrument on mercury, the examination of the usefulness of broader chemical legal instruments, and the development of international structures for ensuring sound chemicals management after 2020.